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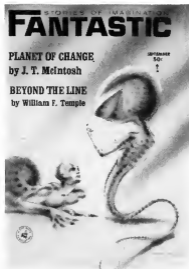
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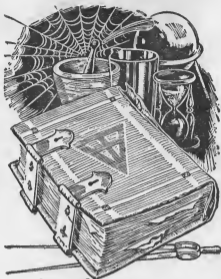
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Fact and Science Fiction **AMAZING** stories

SEPTEMBER, 1964
Vol. 38, No. 9

REG. U. S. PAT. OFF.

"FIRST IN SCIENCE FICTION SINCE 1926"

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Illustrating *Kingdoms of the Stars*

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editorial

THIS is, as the signs have it, the Year of the Fair in New York City. The New Yorker, in addition to having to force his way through the city amidst the press of fellow-New Yorkers, now has to fight his way through the additional thousands of tourists. (They are harder to move through, for they do not push back like New Yorkers, and the native son is constantly thrown off balance by leaning against somebody who, unexpectedly, does not lean back.)

Anyhow, the wonder of the World's Fair at the moment seems to be: why are all these people here, anyway? What's to see? The Fair, to judge by impartial press reports and the loud despairing screams of concessionaires at Flushing Meadows, seems to be a major bust. Can it be that what has in the past happened to s-f magazines—that is, the impact of reality on what had long been fiction's realm—is happening to the Fair?

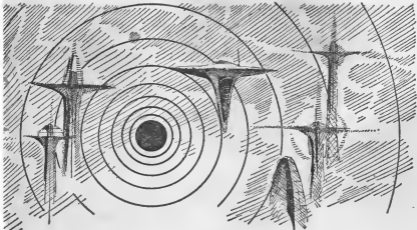
That may well be one reason why virtually no one turns out to see the world's first "rocket man" leap over the Unisphere powered by self-contained jet-rockets on his back-pack. Or why it is usually possible to get in without much of a wait to the hall wherein scientists demonstrate, every half an hour, how to create and contain a fusion reaction.

Maybe those of us who remember the Futurama from the 1939 Fair—with its cute model cars running all over those fanciful highways with their over- and under-passes and cloverleaves—do not wish to be given a pre-vision of the traffic of the future. Who would have thought the Futurama's charming models would come to such real and horrible bumper-to-bumper life?

From Manhattan, looking eastward toward Queens at night,

(Continued on page 180)





*Gordon saw the drowned suns of the Clouds, heard
the sun strike Throon's crystal peaks, touched
Lianna, and annihilated space. Now he wondered:
Was it all a dream, or retreat into delusion, or
had he actually been to . . .*

The Kingdoms of the Stars

By EDMOND HAMILTON

Illustrated by ADRAGNA

THE receptionist opened the inner door. "Will you go right in, Mr. Gordon?"

Gordon said, "Thank you."

The door closed softly behind him, and at the same time a man rose from behind a small desk and came toward him. He was a

tall man, surprisingly young, with a brisk, friendly, energetic air about him. "Mr. Gordon?" he said, and held out his hand. "I'm Dr. Keogh."

Gordon shook hands and allowed himself to be guided to a chair beside the desk. He sat, looking around the room, looking everywhere but at Keogh, suddenly acutely embarrassed.

Keogh said quietly, "Have you ever consulted a psychiatrist before?"

Gordon shook his head. "I never . . . uh . . . felt the need."

"All of us have problems at some time in our lives," said Keogh. "This is nothing to be ashamed of. The important thing is to realize that a problem does exist. Then, and only then, is it possible to do something about it." He smiled. "You see, you've already taken the vital forward step. From here on it should be much easier. Now then." He studied Gordon's card, which he had filled in at what seemed unnecessary length. "You're in the insurance business."

"Yes."

"Judging from your position with the firm, you must be quite successful."

"I've worked hard these last few years," Gordon said, in an odd voice.

"Do you like your work?"

"Not particularly."

Keogh was silent a moment or

two, frowning at the card. Gordon fought down an overwhelming impulse to run for the door. He knew that he would only have to come back again. He could not carry this question alone any longer. He had to know.

"I see that you're unmarried," Keogh said. "Like to tell me why?"

"That's part of the reason I came here. There was a girl . . ." He broke off, then said with sudden fierce determination, "I want to find out if I've been having delusions."

"What kind of delusions?" asked Keogh gently.

"At the time," said Gordon, "I wasn't in any doubt. It was all real. More real, more *alive*, than anything that ever happened to me before. But now . . . now I don't know." He looked at Keogh, his eyes full of pain. "I'll be honest with you. I don't want to lose this dream . . . if it was a dream. It's more precious to me than any reality. But I know that if . . . if I . . . oh, hell." He got up and moved around the room, aimlessly, his broad stocky shoulders hunched and his hands balled into fists. He looked like a man about to jump off a cliff, and Keogh knew that he was just that. He sat quietly, waiting.

Gordon said, "I thought that I went to the stars. Not now, but in the future. Two hundred thousand years in the future. I'll give

it to you all in one lump, Doctor, and then you can call for the strait-jacket. I believed that my mind was drawn across time, into the body of another man, and for a while . . . keeping my own identity, you understand, my own memories as John Gordon of 20th Century Earth . . . for a while I lived in the body of Zarth Arn, a prince of the Mid-Galactic Empire. I went to the stars . . ."

HIS voice trailed away. He stood by the window, looking out at falling rain and the roofs and walls and chimneys of West 64th Street. The sky was a drab blankness fouled with soot.

"I heard the sunrise music," Gordon said, "that the crystal peaks make above Throon when Canopus comes to warm them. I feasted with the star-kings in the Hall of Stars. And at the end, I led the fleets of the Empire against our enemies, the men from the League of Dark Worlds. I saw the ships die like swarming fireflies off the shores of the Hercules Cluster . . ."

He did not turn to see how Keogh was taking all this. He had started and he would not stop, and in his voice there was pride and longing and the anguish of loss.

"I've shot the Orion Nebula. I've been into the Cloud, where the drowned suns burn in a haze

of darkness. I've killed men, Doctor. And in that last battle, I . . ."

He stopped and shook his head, turning abruptly away from the window.

"Never mind that now. But there was more. A lot more. A whole universe, a language, names, people, costumes, places, details. Could I have imagined all that?"

He looked at Keogh. Desperately.

Keogh said, "Were you happy in that universe?"

Gordon thought about that, his square, honest face creased in a careful frown. "Most of the time I was frightened. Things were . . ." He made a gesture vaguely indicating great troubles. "I was in constant danger. But . . . yes, I guess I was happy there."

Keogh nodded. "You mentioned a girl?"

Now Gordon turned again to the window. "Her name was Lianna. She was a princess of Fomalhaut Kingdom. She and Zarth Arn were betrothed . . . a matter of state, you understand, and it wasn't supposed to be anything more. Zarth Arn already had a morganatic wife, but I, Gordon, in Zarth Arn's body, I fell in love with Lianna."

"Did she return your feeling?"

"Yes. It was the end of the world for me when I had to leave

her and come back here to my own world, my own time . . . And here's what makes it so difficult, Doctor. I'd given up hope of ever seeing her again, and then it seemed to me that she spoke to me one night, telepathically, across time, and told me that Zarth Arn believed he could find a way to bring me through physically, in my own body. . . ." His voice trailed off again and his shoulders sagged. "How insane that sounds when I tell it. But it made this dreary life worth living for a long while, just the hope, knowing that some day I might go back. And of course, nothing ever happened. And now I don't know whether anything ever did happen, really."

HE walked back to the chair and sat down, feeling strangely exhausted and empty.

"I've never told this before to anyone. Now that I have, it's like . . . it's as though I'd killed something, or killed part of myself. But I can't go on living between two worlds. If that world of the future was hallucination, and this one is reality, the *only* reality, then I've got to accept it."

He sat, brooding. Now it was Keogh's turn to rise and move about. He turned to glance at Gordon a time or two, as though he were having difficulty finding

a point of attack. Then he made up his mind.

"Well," he said briskly, "let us look at the available evidence." He glanced at some scribbled notes on his desk. "You say that your mind was drawn across time, into the body of another man."

"That's right. Zarth Arn was a scientist as well as a noble. He had perfected the method and the equipment. The exchange was effected from his laboratory."

"Very well. Now what happened to your own body, here in the present day on Earth, while your mind was absent from it?"

Gordon looked at him. "I said exchange. That was the purpose of the whole thing. Zarth Arn wanted to explore the past. He had done this many times before. Only in my case, things got fouled up."

"Then this . . . uh . . . Zarth Arn actually inhabited your body?"

"Yes."

"Went to your place of employment, did your work. . . ?"

"Well, no. When I came back, my boss said he was happy to see me recovered from my illness. Apparently Zarth Arn had given that excuse. I don't suppose he wanted to run the risk of making some irreparable blunder. I did not have the same choice."

Keogh said, "I congratulate

you on your very logical mind, Mr. Gordon. But there is no proof at all, no physical proof, that this exchange of minds actually took place?"

"No," said Gordon. "Not a bit. How could there be? But what did you mean about my logical mind?"

"You have covered all the loopholes so carefully." Keogh smiled. "It's a gorgeous fantasy, Mr. Gordon. Few men are gifted with that much imagination." He added seriously, "I understand what strength of mind it must have taken to bring you here. I think we are going to have a very good relationship, Mr. Gordon, because I think you already realize subconsciously that your dreams of star-kingsdoms and nebulae and beautiful princesses were only the attempt of your mind to escape from a world that you found unbearably dull and humdrum. Dreary, I think was your word. Now, this will take work, and time, and possibly there will be some painful moments, but I don't think you have anything at all to worry about. The fact that you've had no recurrence of the dream for a long period of time is a healthy sign. I shall want to see you twice weekly, if possible . . ."

"I can manage it."

"Good. Miss Finlay will make the appointments for you. Oh,

and here is my private number." He handed Gordon a card. "If you should at any time have a recurrence, please call me, no matter how late it is."

He shook Gordon's hand warmly, and a few minutes later Gordon found himself on the street, walking in the rain and feeling nothing but an utter desolation. He knew that Keogh was right, that he must be right. He knew that he had indeed almost resigned himself to that fact and only needed someone to supply the final push. Yet somehow the act of putting it all into words had the cruelty of a surgeon's knife, performing a necessary and humane operation but without anaesthesia.

And it had all seemed, and did still seem, so real . . .

Brutally he thrust out of his mind and heart the sound of Lianna's voice, the beautiful picture of her face, the memory of her lips.

In his office, Keogh was talking rapidly into his dictation machine, getting all of what Gordon had told him down while it was fresh, and shaking his head in wonder. *This* case was going to be, literally, one for the books.

TWICE a week thereafter Gordon visited Keogh, answering his questions, telling more and more of his dream, and under

Keogh's skillful guidance learning to look at it objectively. He came to understand the underlying motivations . . . boredom with a job that did not offer him sufficient challenge, desire for fame and aggrandizement, desire for power, desire to punish the world for its frustrations and its failure to appreciate him. On this last point, Keogh had been enormously impressed, not to say startled, by Gordon's description of the Disruptor, a weapon of incredible power which, as Zarth Arn, he had wielded in the great battle against the League.

"You annihilated part of *space*?" Keogh asked, and shook his head. "You do have powerful desires. How fortunate that you took this one out in dreaming."

Lianna was most easily explained of all. She was the dream-girl, the unattainable, and by transferring his feelings to her he was relieved of the necessity of seeking out or competing for the actual young women by whom he was surrounded. Keogh pointed out to him that he was afraid of women. Gordon had felt that he was merely bored by them, but he supposed Keogh knew his subconscious better than he did. So he did not dispute him.

And steadily, week by week, the dream faded.

Keogh was personally delight-

ed by the whole case. He liked Gordon, who had proved to be a uniquely cooperative patient. And he had acquired a mass of material that was going to keep him in learned papers and outstanding lectures for a long time to come.

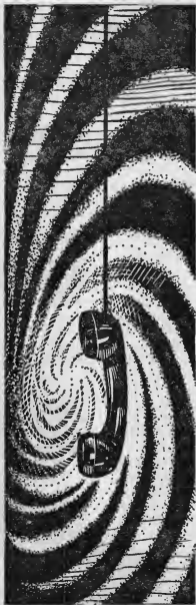
AT last, on one soft May afternoon when the sun shone gently down from a cloud-flecked sky, Keogh said to Gordon, "We have made tremendous progress. I'm very pleased. And I'm going to let you try your wings alone for a while. Come back in three weeks and tell me how you're doing."

They had a drink together to celebrate and later on Gordon bought himself a lavish dinner and took in a show, telling himself all the while how happy he was. When he walked home to his apartment late that night the stars were glowing above the city lights. He studiously avoided looking at them.

He went to bed.

At forty-three minutes past two o'clock Keogh's phone rang, rousing him from sleep. He answered it, and was instantly wide awake. "Gordon! What is it?"

Gordon's voice was wild and shaken. "It's come again. Zarth Arn. He spoke to me. He said . . . he said he was ready now to bring me through. He said Li-



anna was waiting. Doctor . . .
Doctor . . . !"

The voice broke off. "Gordon!" Keogh shouted, but there was no answer. "Hold on," he said to the humming wire. "Don't panic. I'll be right over."

He was there in fifteen minutes. The door of Gordon's apartment was locked but he roused the manager, who unlocked it. The apartment was empty and quiet. The phone swung from its cord as though it had been dropped in the midst of conversation. Absently Keogh replaced it.

He stood for a little time, thoughtful. He had no doubt of what had happened. Gordon had not been able to stand the loss of his glittering delusion, his dream. And so Gordon had run away, from his analyst, from reality. He would be back, but all that work must be done again. . . . Keogh sighed, and shook his head, and went out.

II

CONSCIOUSNESS returned to Gordon very slowly. He had at first only a confused memory of fear, terror, gut-wrenching mind-shattering panic that was somehow combined with the sensation of falling right off the world into a state of not-being. He thought that he could hear himself yelling, and

he wondered wildly why Keogh did not hear and come to save him. Then he heard other voices, familiar un-familiar, far away. A liquid slid coolly down his throat and exploded into white fire in his stomach. He opened his eyes. There was a blank wash of light out of which images emerged gradually. Large forms, walls and windows and furniture. Small forms, close at hand, bending over him.

Faces.

Two faces. One was just a face, male, intent, anxious. The other was his own face . . .

No. Now wait a minute. His own face was square and blue-eyed and brown-haired, and this face above him was dark-eyed and aquiline, so it could not possibly be his own. And yet . . .

"Gordon. Gordon!" the face was saying.

The other face said, "One moment, Highness." Gordon felt his head raised. A hand holding a glass appeared out of the mist. Gordon drank automatically. Again there was the explosion of white fire inside him, very pleasant and invigorating. The mist began to clear.

He looked up into the dark handsome face, and after a moment he said, "Zarth Arn."

Strong hands gripped him. "Thank God. I was beginning to be afraid . . . No, don't try to get up yet. Lie still. You were in

shock for a long time . . . and no wonder, with the atoms of your body riven right through the time-dimension. But it's done now. After all these years of work, finally, success!" Zarth Arn smiled. "Did you think I had forgotten you?"

"I thought . . ." said Gordon, and closed his eyes again. Keogh. Keogh, he thought, I need you. Am I truly mad and dreaming? Or is this real?

Real, as I knew all along, as I never stopped knowing in spite of all your careful logic!

Real.

He struggled to sit up, and they let him. He looked around the laboratory room. It was just the same as the first time he had seen it, except that some new and very elaborate equipment had been installed, a panel of incomprehensible controls at one side and in the center a tall structure like a glass coffin set on end and suspended between two power grids that were like nothing in Gordon's experience. Enormously fat cables snaked out of the room, presumably to a generator somewhere beyond.

The room was octagonal, with tall windows in each side. Through them poured the clear and brilliant sunlight of high altitudes, and through them Gordon could see the mighty peaks of the Himalayas. Old Earth was still there, outside.

He looked down at his hands, at his familiar body. He felt the solidity of the padded table on which he sat, the texture of the sheets, the movement of air across his naked back. He reached out and took hold of Zarth Arn. Bone and muscle, flesh and blood, warm, living.

Gordon said, "Where is Lian-na?"

"Waiting." His nod indicated that she was close by, in another room. "She wanted to be in here with us, but we thought it better not. As soon as you feel strong enough . . ."

Gordon's heart was pounding. Reality, dream, sanity or madness, what did it matter? He was alive again, and Lianna was waiting. He stood up, and laughed as Zarth Arn and the other man caught him and shored up his buckling knees. "It was a long time," he said to Zarth Arn. "I got a little confused. But it's all right now. Whatever this is, I'll settle for it. How about another helping of that hellfire, and some clothes?"

Zarth Arn looked at the other man. "What about it, Lex Vel? Gordon, this is Vel Quen's son . . . he's taken his father's place with me. If it hadn't been for him, I couldn't have solved all the insoluble problems that have been driving us both mad ever since you returned to your own time."

"Why be modest?" Lex Vel said. "It's true." He shook Gordon's hand, grinning. "And the answer is no, not yet. Rest a while and then we'll talk about clothes."

Gordon lay down again, reluctantly. Zarth Arn said, "You'll find quite a welcome at Throon when you get there, Gordon. My brother Jhal is one of the few who know the whole story and he understands what you did for us. We can never repay you, really, but don't think that we've forgotten."

Lying there, Gordon remembered the day when Jhal Arn, ruler of the Empire in the place of his murdered father, had been himself struck down by a would-be assassin, leaving the vast burden of Empire diplomacy and defense upon his, Gordon's, totally inadequate shoulders. By the grace of heaven and sheer fool luck he had bulled it through.

He smiled and said, "Thanks," and then unexpectedly he slept for a while.

WHEN he woke the sunlight was dimmer, the shadows of the high peaks longer. He felt fresh and rested. Zarth Arn was not there but Lex Vel ran a check on him, nodded, and pointed to some clothing draped over a chair. Gordon rose and dressed, feeling shaky at first but rapid-

ly recovering his strength. The suit was of the silky fabric he remembered, sleeveless shirt and trousers in a warm shade of copper, with a cloak of the same material. He stood before a mirror to adjust the cloak, and he had never seen his own self before in this attire, which had looked natural and right on Zarth Arn but which made him smile now and feel as though he were dressed for a costume ball.

And then it hit him like a thunderbolt.

Lianna had never seen him. She had fallen in love with him as Zarth Arn, a different Zarth Arn to be sure, and she had understood later that the personality she loved belonged to John Gordon of Earth. But would she still love him when confronted with his physical actuality? Or would she be disappointed, would she find him plain and dull-looking, perhaps even repulsive?

Gordon turned to Lex Vel. He said desperately, "I really do need some more of that stimulant . . ."

Lex Vel glanced at his face and brought him a glass immediately. Gordon drank it down, as Zarth Arn came in, and then hurried toward them.

"What is it?"

"I don't know," said Lex Vel. "He seemed all right, and then all at once . . ."

Zarth Arn said gently, "Per-

haps I can guess. It's Lianna, isn't it?"

Gordon nodded. "I suddenly realized that she'll be seeing me for the first time . . . a total stranger."

"She's somewhat prepared. Remember, I've been able to describe you to her, and she's asked me to do so at least ten thousand times." He put his hand on Gordon's shoulder. "It may take her a while to get used to the change, Gordon, but be patient and never doubt how she feels about you. She has spent far too much time here, away from her kingdom. And many times when she should have been at home attending to affairs of state, she's been here instead, waiting for the day when we could say we were ready to try." Zarth Arn shook his head, his eyes serious. "She has ignored repeated messages from Fomalhaut, and of course she wouldn't listen to me. Now that you're here and safe, I'm hoping she'll listen to you. Tell her, Gordon. Tell her she must go home."

"Is there trouble?"

"There's always trouble when the head of state isn't attending to business," said Zarth Arn. "How much or how serious it is I don't know because she hasn't told me. But the messages from Fomalhaut were coded Urgent at first. Now they're Imperative. You will tell her?"

"Of course," said Gordon, rather glad at the moment that he had something beside himself to worry about.

"Good," said Zarth Arn, and took him by the arm. "Take heart, friend. Remember, I've described you. She's not expecting an Apollo."

He looked at Gordon in such a way that Gordon had to grin briefly. "My friend," he said. "Thanks a lot."

Zarth Arn laughed and led him out. But Gordon still felt afraid.

SHE was waiting for him in a small room that faced the sunset. Beyond the window the snow peaks caught the light and flamed a glorious hot gold, and below them the gorges were filled with purple shadow. Zarth Arn left him at the doorway, and they two were alone. It was quiet there. She turned from the windows to look at him and he stood where he was, afraid to move, afraid to speak. She was as lovely as he remembered, tall and slim and graceful, with her ash-blond hair and her clear gray eyes. And now finally Gordon knew that this was all true and no dream, because no man could imagine what he was feeling in his heart.

"Lianna," he whispered. And again, "Lianna."

"You are John Gordon . . ."

She came toward him, her eyes searching his face as though for some tiny scrap of familiarity by which she might know him. He wanted to take her in his arms, to hold her and touch her and kiss her with all the stored-up hunger of the lonely years, but he did not dare. He could only stand rigid and miserable while she came closer, searching, and then she stopped. Her gaze dropped and she turned away a little, her red mouth uncertain.

Gordon said, "Is it so much of a shock?"

"Zarth Arn told very truly how you would look."

"And you find me . . ."

"No," she said quickly, and turned to meet his gaze again. "Please don't think that." She smiled, rather tremulously. "If I were meeting you for the first time . . . I mean, *really* for the first time, I would think you a most attractive man . . ." She shook her head. "I mean, I *do* find you attractive. It isn't that at all. It's just that I will have to learn to know you all over again. That is," she added, her eyes very steady on his, "if you still feel as you did toward me . . ."

"I do," he said. "I do." And he put his hands on her shoulders. She did not draw away, but neither did she yield toward him. She only smiled uncertainly and repeated Zarth Arn's words to him. "Be patient with me."

He took his hands away and said, "I will," trying to keep all trace of bitterness out of his voice. He went over to the window. The flaming peaks had darkened and the snowfields were turning to a pure blue, as the first stars pricked the sky. He felt as cold and empty and forlorn as the wind that scoured those snows.

"Zarth Arn tells me that you have trouble at home."

She brushed it aside. "Nothing of importance. He wants you to tell me to go home, doesn't he?"

"Yes."

"And I will, tomorrow, on one condition." She was close beside him again, the last of the daylight showing her face pale and clear as a cameo in the dusk. "You must come with me."

He looked at her and she touched his arm. "I've hurt you," she said softly. "And I didn't mean to, I didn't want to. Can you forgive me?"

"Of course, Lianna."

"Then come with me. A little time, John Gordon . . . that's all I need."

"All right," he said. "I'll come." I'll come, he thought fiercely, and if I have to woo and win you all over again, I'll do it so good and damn well that you'll forget there was ever a time when I looked like somebody else.

III

THE royal star-cruiser with the White Sun of Fomalhaut glittering on her bows lifted from the starport, beyond which lay the greatest city of latterday Earth. It was a city of wide space and lifting beauty. Flared and fluted pylons towered at the intersections of the grid of roadways. Down through the yellow sunshine flocked the weird inverted cones of the local Terran flyers, past the vigilant traffic officers who watched from their little floating de-grav stations in the sky.

The starship left all this behind and plunged back into her true element, the glooming tideless seas of space that run so deep between the island suns. The yellow spark of Sol and the old green planet from which the human race had spread through a universe, dropped back into obscurity. Now once more the ranked stars shone before Gordon, in all their naked splendor. No wonder, he thought, that he had been smothered by the cramped horizons of 20th Century Earth, after having once seen this magnificence.

Across the broad loom and splendor of the galaxy, the nations of the Star-Kings were marked in many-colored fire, crimson and gold and emerald green, blue and violet and dia-

mond-white . . . the kingdoms of Lyra, Cygnus, Cassiopeia, Polaris, and the capital of the great Mid-Galactic Empire at Canopus. The Hercules Cluster blazed with its Baronies of swarming suns. To the south, as the cruiser beat westward toward Fomalhaut, the Orion Nebula sprawled its coiling radiance across the firmament. Far northward lay the black blot of the Cloud, where drowned Thallarna lay now in peace.

Once, as the cruiser altered course to skirt a dangerous bank of stellar drift, Gordon caught sight of the Magellanic Clouds, the as-yet unknown and unexplored star-clouds lying like offshore islands in the intergalactic gulf. He remembered that there had once been an invasion of the alien Magellanians into the then-young Empire, an invasion crushed for all time by an ancestor of Zarth Arn's who had for the first time used that terrible secret weapon of the Empire, the thing called the Disruptor.

Gordon thought of Keogh and his detailed psychological explanation of what he had called "the Disruptor fantasy". He smiled, shaking his head. A pity Keogh was not here with him. Keogh could explain the cruiser as a womb symbol, and he could explain Lianna as the unattainable dream-girl, and Gordon's

romance with her as pure wish-fulfillment. But he wondered just how Keogh would explain Korkhann, Lianna's Minister of Non-Human Affairs.

HIS first meeting with Korkhann, which took place the night before take-off, had been a shock to Gordon. He had known that there were non-human citizens in the Kingdoms of the stars, and he had even seen a few of them, briefly and more or less distantly, but this was the first time he had actually encountered one face to face.

Korkhann was a native of Krens, a star-system on the far borders of Fomalhaut Kingdom. From it, Korkhann said, one might look out across the vast wilderness of the Marches of Outer Space, as though one perched precariously on the last thin edge of civilization.

"The Counts of the Marches," Zarth Arn had explained to Gordon, "are allied to the Empire, as you remember. But they're a wild lot, and apparently determined to remain that way. They say their oath of fealty did not include opening their borders to Empire ships, and they refuse to do so. My brother often feels that we might be better off to have the Counts as enemies rather than friends."

"Their time will come," Korkhann said. "Just now, my im-

mediate problems are closer to home." And he had bent his severe yellow gaze upon Lianna, who reached out and placed her hand affectionately on his sleek gray plumes.

"I have been a trial to you," she said, and turned to Gordon. "Korkhann came here with me, and he has been in touch with Fomalhaut almost constantly by stereo-communicator, doing his best to deal with affairs at long distance."

And Korkhann turned his round unwinking eyes and his beaked nose to Gordon had said in his harsh whistling voice, "I'm glad you have been safely delivered here at last, John Gordon, while her Highness still has a kingdom to go back to."

Lianna had made light of that, and Gordon had been still distracted by this sudden confrontation with a five-foot-high creature who walked erect, clothed in pride and his own beautiful feathers, who spoke the English-derived language of the Empire, and who gestured gracefully with the long clawed fingers that terminated his flightless wings. But now, on the voyage, Gordon remembered.

They were alone, the three of them, in the cruiser's small but lavishly fitted lounge, and Gordon had been looking forward to the hour when Korkhann would finish his impossibly complicated

chess-game with Lianna and retire to his own cabin. He sat pretending to scan a tape from the cruiser's library, covertly watching Lianna as she bent her head over the board, thinking how beautiful she was and then glancing at Korkhann and trying to stifle the inner qualm of revulsion he had been fighting ever since that first meeting. And suddenly he said,

"Korkhann . . ."

The long slim head turned, making the neck-plumage shift and shine in the lamplight. "Yes?"

"Korkhann, what did you mean when you said you were glad I had come while Lianna still had a kingdom to go back to?"

Lianna said impatiently, "There's no need to go into all that now. Korkhann is a loyal friend and a devoted minister, but he worries too . . ."

"Highness," said Korkhann gently. "We have never had even small falsehoods between us, and this would be a bad time to begin. You worry just as much as I do about Narath Teyn, but because of another matter you have set aside that worry, and in order to salve your conscience you must deny that there is anything to worry about."

Gordon thought, "He sounds exactly like Keogh." And he waited for the explosion.

Lianna's mouth set and her eyes were stormy. She rose, looking imperious in a way that Gordon remembered, but Korkhann continued to sit and bear her angry gaze quietly. Abruptly she turned away and said,

"You make me furious, so what you say is probably true. Very well, then. Tell him."

"Who," asked Gordon, "is Narath Teyn?"

"Lianna's cousin," Korkhann said. "He is also the presumptive heir to the crown of Fomalhaut."

"But I thought Lianna . . ."

"Is the legal and undoubted ruler. Yes. But there must always be a next in succession. How much do you know about the kingdom, John Gordon?"

He indicated the tape. "I've been studying, but I haven't had time to learn too much." He frowned at Korkhann. "I could wonder why this would concern the Minister for Non-Human Affairs."

KORKHANN nodded and rose from the forgotten chess game. "I can show you." He dimmed the lights and touched a wall stud. A panel slid back, revealing a three-dimensional map of Fomalhaut Kingdom, a spatter of tiny suns in the simulated blackness of space, dominated by the white star that gave the area its name.

"There are many non-human races in the galaxy," Korkhann said. "Some are intelligent and civilized, some are brutish, some are making the change from the one to the other, some probably never will. In the early days there were some unfortunate confrontations, not without reason on both sides. You find me repellent . . ."

Gordon started, and was aware that Lianna had turned to look at him. He felt his face turn hot, and he said with unnecessary sharpness, "Whatever gave you that idea?"

"Forgive me," Korkhann said. "You have been most studiously polite, and I don't wish to insult you, especially since I understand that yours is a purely instinctive reaction . . ."

"Korkhann is a telepath," said Lianna. She added, "Quite a lot of non-humans are, so if what he says is true, John Gordon, you had better conquer that instinct."

"You see," said Korkhann, "well over half the worlds of our Kingdom are non-human." His quick clawed fingers pointed them out, the tiny solar-systems with their mote-like planets. "On the other hand, the uninhabited worlds that were colonized by your people—here, and here . . ." Again the long finger flicked. "These are the planets with the heavy populations, so that hu-



mans out-number non-humans, by about two-thirds. You know that the Princess rules with the aid of a Council, which is divided into two chambers, with representation in one based upon planetary units, and in the other on population . . ."

Gordon was beginning to get part of the picture. "So one chamber of the Council would always be dominated by one group."

"Exactly," Korkhann said. "Therefore the opinion of the ruler is often the deciding one. You can see that because of this, the sympathies of the ruler are of more than ordinary importance in Fomalhaut Kingdom."

"There was never any real difficulty until about two years ago," Lianna said. "Then a campaign began to make the non-humans believe that the humans were their enemies, that I in particular hated them and was hatching all sorts of plots . . . Complete nonsense, but among non-humans as well as humans there are always those who will listen."

"Gradually," Korkhann said, "a pattern emerged. A certain group among the non-human populations aspires to take over the rule of Fomalhaut Kingdom, and as a first step they must replace Lianna with a ruler more to their liking."

"Narath Teyn?"

"Yes," said Korkhann, "and I will answer your unspoken question also, John Gordon. No, Lianna, it is a fair question and I wish to answer it." The bright yellow eyes met Gordon's squarely. "You wonder why I support the human cause against my own kind. The answer is quite simple. It is because in this case the human cause is the just one. The group behind Narath Teyn talk very eloquently of justice, but they think only of power. And somewhere in all this there is something hidden, an evil which I do not yet understand but which frightens me nevertheless."

He shrugged, rippling the gray shoulder-plumes. "Beyond all that, Narath Teyn is . . ."

He stopped as someone rapped sharply on the door.

Lianna said, "Enter."

A junior officer entered and stood at rigid attention. "Highness," he said, "Captain Harn Horva respectfully requests your presence on the bridge, at once." His eyes flicked to Korkhann. "You too, sir, if you please."

Gordon felt the small shock of alarm in the air . . . only an emergency of considerable importance would bring such a request from the captain. Lianna nodded.

"Of course," she said, and turned to Gordon. "Come with us."

THE young officer saluted and led the way. They followed him down narrow gleaming corridors and up a steep companionway to the ship's control-center, still archaically called "the bridge".

Aft was a long curving bulkhead filled with the massed panels of the computer banks, the guidance systems, the controls that governed velocity, mass, and the accumulator banks. Here under the steel floorplates the throbbing of the generators was as close and intimate as the pulsing of one's own blood. Forward a series of screens gave visual and radar images of space along a 180 degree perimeter, and at one side was the stereo-communicator. As they entered the bridge Gordon was aware of the complete silence, broken only by the electronic purlings and hummings of the equipment. The technicians all appeared to be holding their breath, their attention fixed half on their instruments and half on the taut little group around the radar screens, the captain, first and second officers, and radar men.

Harn Horva, a tall vigorous gray-haired man with very keen eyes and a strong jaw, turned to greet them. "Highness," he said. "I'm sorry to disturb you, but it is necessary."

To Gordon's untutored eye the screens showed nothing but a

meaningless speckle of blips, and he turned his attention instead to the visual screens.

The cruiser was approaching an area of cosmic drift. Gordon saw it first as a sort of tenuous dark cloud occluding the stars beyond it. Then as he looked he began to see its individual components, bits and pieces of interstellar wrack gleaming faintly in the light of the far-off suns . . . rocks as big as worlds, rocks as small as houses, and every size in between, embedded in a tattered stream of dust that stretched for a parsec or two across the void. It was still a long way off. The cruiser would pass it on her port beam, with distance to spare. Nothing else showed. He could not understand what the excitement was about.

Harn Horva was busy explaining to Lianna.

"Our regular radar is picking up only the normal blips associated with drift. But the hot-spot scanners are getting some high-energy emissions that are not at all typical of drift." His face was grim, his voice driving on to a harsh conclusion. "I'm afraid we'll have to assume that there are ships lying up in there, using the drift as a screen."

"Ambush?" asked Lianna, her own voice perfectly steady. And Gordon's heart jumped and began to pound. "I don't see how that could be possible, Captain.

I know that you've been following the tactical evasion course required by security regulations, which means that you yourself have been improvising the coordinates at random intervals. How could anyone plan an ambush without knowing our course?"

"I could postulate a traitor," said Harn Horva, "but I think it highly unlikely. I would guess instead that telepaths are being used." His voice became even harsher. "Narath Teyn has the pick of them on his side."

He turned to Korkhann. "Sir, I would appreciate your assistance."

"You wish to know if there are indeed ships there," Korkhann said, and nodded. "As you say, Narath Teyn has the pick, and my race is not among them. Still, I'll do my best."

He moved a little apart and stood quiet, his yellow eyes going unfocused and strange. Everyone was silent, waiting. The generators throbbed and thundered. Vagrant blips sparked and were gone on the hot-spot screens. Gordon's mouth was dry and his chest felt tight, and his hands were sweating.

At last Korkhann said, "There are ships. Narath Teyn's."

"What else?" asked Lianna. "What did you hear?"

"Minds. Human, non-human, a babble of minds on the edge of

battle." His slim clawed fingers opened in a gesture of frustration. "I could not read them clearly, but I think . . . I think, Highness, they are waiting not to capture, but to kill."

IV

INSTANTLY there was an outcry in the bridgeroom, of anger and shock. Harn Horva quelled it with one sharp order.

"Quiet! We have no time for that." He turned again to the screens and studied them, his body taut as a drawn bow. Gordon looked at Lianna. Whatever she felt inside, she was showing nothing to the men but cool self-possession. Gordon began really to be afraid.

"Can't you message Fomalhaut for help?" he asked.

"Too far away. They couldn't possibly get here in time, and in any case our friends ahead there in the drift would attack instantly if they intercepted such a message . . . which of course they would."

Harn Horva straightened, the lines deep at the corner of his mouth. "I believe our only hope is to turn and run for it. With your permission, Highness . . ."

"No," said Lianna, unexpectedly.

Gordon stared at her. So did the Captain. She smiled, briefly and without humor.

"There's no need to spare me, Harn Horva, though I thank you for the intent. I know as well as you do that we might outrun their ships, but not all their missiles. And the moment we change course, showing that we're aware of the ambush, we'd have a cloud of missiles after us."

Harn Horva began talking fiercely about evasive action and missile-destroyer batteries, but Lianna was already beside the Communications technician.

"I will speak to the Royal ComCenter at Fomalhaut. Make it a normal transmission . . ."

"Highness!" said the Captain desperately. "They'll intercept the . . ."

"I want them to," said Lianna, and Gordon was struck by the look in her eyes. He started to speak but Korkhann forestalled him, his feathers ruffled with emotion.

"Your plan is a bold one, Highness, and sometimes boldness pays. But I urge you to think very carefully before you commit yourself . . ."

"And all of you as well. I understand that, Korkhann. I have thought. And I can see no other way." Looking at them all, she explained. "I will message Fomalhaut that I am going on to visit my cousin Narath Teyn at Marral, for an important conference. Then I propose to do exactly that."

For a moment there was a stunned silence. Then Gordon said, "What?"

Lianna continued as though she had not heard him. "You see what this will do. If it's known that I'm heading for Marral, and anything happens to me on the way, my cousin would certainly get the blame. At the very least it would rouse enough feeling against him so that his hopes of succeeding me would be pretty well ruined. Which stalemates our friends there in the drift . . . Narath Teyn won't dare let me be killed under circumstances that would shatter all his plans."

"That's all very fine," said Gordon, "but what happens after you get there. You know the man wants to get rid of you . . . and you're putting yourself squarely in his hands?" He was close to Lianna now, intent only on her and quite unaware of the frozen stillness around him. "No. The Captain's idea is better. The chance of escaping may be small but it is a chance. This way . . ."

Lianna's eyes were very wide, very cool, very gray. She smiled, a small curving of the mouth. "I thank you for your concern, John Gordon. I have considered all the objections, and this is my decision."

She turned to the technician. "Fomalhaut, please."

The technician looked uneasily at Harn Horva, who made a helpless gesture and said, "Do as her Highness wishes." Neither he nor anyone else appeared to notice the coloring of Gordon's face, which was first red and then white. In fact it was as though Gordon had suddenly become invisible.

GORDON moved forward a step, without quite realizing it. Korkhann's fingers closed tightly on his arm, and then more tightly, the sharp talons digging just a little. Gordon stiffened and then forced himself to relax and stand easily. He watched the screens while Lianna made her transmission to Fomalhaut. Nothing happened. The dark drift ahead remained quiescent, concerned with its own cold and ancient affairs which had nothing to do with humanity. The thought crossed his mind that Korkhann might have invented the lurking ships and the death-wish.

"But see here," whispered Korkhann's voice beside him. The clawed fingers pointed to the hot-spot screens and the vagrant sparks that glittered there. "Each spark is a ship's generator. The drift moves. Nothing is ever still in space. As the drift moves, so must the ships, and these scanners can see where radar is as good as blind."

"Korkhann," said Gordon softly, "my friend, you make me just the least small bit nervous."

"You'll get used to it. And don't forget . . . I *am* your friend."

Lianna finished her message, spoke briefly to the Captain, and left the bridge. Gordon followed with Korkhann. Once below, Lianna said pleasantly, "Will you excuse us, Korkhann?"

Korkhann bowed and strode away down the passage on his long thin legs. Lianna flung open the door of the lounge without waiting for Gordon to do it for her. When they were inside and the door closed again, she turned and faced him.

"You must never," she said, "question my judgment or interfere with my orders in public."

Gordon looked at her. "How about in private? Or are you ruler in the bedroom, too?"

Now it was her turn to redden. "It may be hard for you to understand. You come from a different age, and a different culture . . ."

"I did indeed. And I will tell you something. I will not give up my right to say what I think." She opened her mouth, and he raised his voice, not much, but there was a note in it that held her silent. "Furthermore, when I speak as a friend, as a man who loves you and is concerned only for your safety,

I will not be publicly slapped in the face for it." His eyes were as steady as hers, and as hot. "I'm beginning to wonder, Lianna. Perhaps you'd do better with someone who isn't such a lout about protocol."

"Please try to understand! I have obligations above and beyond my personal feelings. I have a kingdom I must worry about . . ."

"I do understand," Gordon said. "I had an empire once to worry about . . . remember? Good night."

He left her standing. Out in the passage, in spite of his anger, he couldn't help smiling. He wondered how many times before she'd been walked out on. Not often enough, he thought.

He went to his own cabin and lay for a long while, wondering if her harebrained scheme would work, if they would be allowed to pass quietly on their way to Marral, wherever that might be. He half expected every minute to feel the impact of a missile that would blow the cruiser's fragments across half this sector of space. But time went by and nothing happened, and after a while he began to think about Lianna and what might lie ahead. When he slept at last his dreams were disturbed and sad. In all of them he lost her, sometimes in the midst of a lurid darkness where strange shapes walked,

and sometimes in a vast throne-room where she walked away from him, and away and away, gliding backwards with her face toward him, and her eyes on his, the cool, remote eyes of a stranger.

The cruiser skirted the edge of the drift, altered course slightly to the southwest and continued on her way unmolested.

THE next "day" . . . arbitrarily so called in the ship's log . . . Korkhann met Gordon in the Captain's mess, where he was toying with a gloomy breakfast all alone, having purposely waited until Harn Horva and the other officers would be through. Lianna always took her breakfast in her private suite.

"So far," said Korkhann, "the plan seems to be working."

"Sure," said Gordon. "The victim is walking right into the trap, why shoot her on the way?"

"It might be difficult for Narath Teyn to find a way to kill her on his own world without being accused of it."

"Do you think so?"

Korkhann shook his head. "No. Knowing Narath Teyn, and his world, and his people, I don't think it will be difficult at all."

They were silent for a time. Then Gordon said, "I think you'd better tell me all you can."

They went into the lounge and Korkhann opened the map

panel, where the tiny suns of Fomalhaut Kingdom glittered in the dark.

"Here along the southwestern borders of the kingdom is a sort of badland, of rogue stars and uninhabited, uninhabitable worlds, with here and there a solar system capable of supporting life, like Krens, from which I come. The peoples of these scattered systems are, like my own, non-human." He pointed out a tawny-yellow star that burned like a smoky cairngorm on the dark breast of drift-cloud. "That star is Marral, and its planet Teyn is where Narath keeps his court."

Gordon frowned. "It seems a strange place for an heir to a throne."

"He was only sixth in line, until recently. He was born at Teyn. Intrigue runs somewhat in the blood, you see. His father was banished for it, some years before Lianna was born."

"And what makes Narath Teyn so much more popular with the non-humans than Lianna?"

"He has lived his life among them. He thinks like them. He is more one of them, indeed, than I am. Non-humans are of all sorts and kinds, John Gordon, children of many different stars, products of the evolutionary conditions decreed by the conditions on our separate worlds. Many are so alien as to be quite unacceptable not only to humans but

to other non-humans as well. Narath loves them all. He's a strange man, and I think not entirely sane."

Korkhann closed the map panel gently and turned away, his plumage ruffling as it did when he was deeply disturbed.

"Lianna would have done well to listen to you," he said, "and protocol be damned. But she's too brave to be sensibly fearful, and too much her father's daughter to stand for threats. She's angry now, and determined to put a stop to her cousin's activities." He shook his head. "I think she may have waited too long."

"Well," said Gordon, "it's done now."

Lianna gave him no chance to try and alter her decision. In the time that followed, while the tawny star grew from a distant spark to a flaming disc in the screens, she avoided being alone with him. He caught her looking at him with a curiously speculative expression once or twice, but apart from that her manner was correct and outwardly friendly. Only Gordon knew that between them now there was a wall ten feet high. He did not try to climb it. Not yet.

The cruiser went into deceleration and landed on the second of five planets that circled Marral.

Teyn.

Narath's world.

THE dust and the searing heat died away. In the bridgeroom Lianna stood with Harn Horva and Korkhann beside the 'visor screens that now scanned the area outside the ship. Gordon stood a little apart, trying to calm his jumping nerves.

"They did receive your message?" Lianna said.

"Yes, Highness. We have the acknowledgement on tape."

"I'm not doubting your word, Captain. It's just that it seems strange . . ."

It did seem strange, even to Gordon. The screens showed an empty land beyond the primitive and obviously little-used port with its shuttered buildings and cracked pads that could only accommodate a few ships. Away from the blast area there were open gladelike forests of very thin and graceful trees that were the color of ripe wheat and not unlike it in shape. The light was strange, a heavy gold that darkened to orange in the shadows. A breeze, unheard and unfelt, swayed the tall trees. Apart from that nothing moved.

Lianna's mouth was set hard but her voice was silken. "If my cousin is unable to come and greet me, then I must go and greet him. I will have the land-car, Captain, and the guard. At once."

The orders were given. Lianna came and stood before Gordon.

"This is a state visit. You don't need to come with me."

"I wouldn't miss it," Gordon said, and added, "Highness."

A faint color touched her cheekbones. She nodded and went on and he went with her, down to the airlock to await the unloading of the car. Korkhann, beside him, gave him one bright oblique glance. Nothing more was said.

The guard formed ranks around Lianna, and incidentally around Gordon and Korkhann. The airlock opened. The standard-bearer shook out the banner of the White Sun on the strange-scented wind and marched down the ramp, leading them all to the waiting land-car where he fixed the standard in its socket and stood stiffly at attention as Lianna climbed in.

It was a longish vehicle, unobtrusively armored and equipped with concealed firing-ports. The guard was armed. All this should have made Gordon feel more at ease. It did not. There was something about the tall swaying trees, and the way the glades led the eye along their open innocence into a sudden panic of confusion and honey-shadowed gloom. There was something about the air, its warmth like an animal's breath, and its smell of wildness. He did not trust this world. Even the sky offended him, closing him in

with a shimmering metallic curve that was almost tangible, like the roof of a trap.

The land-car sped away along a rude and unpaved track, gentling the roughness to nothing with its airfoil cushion. The land glided past, the character of it changing swiftly from flat to rolling and then to hilly, with forests thinning on the rocky knolls. The shadows seemed to deepen, as though the planet tilted westward toward night.

Suddenly someone . . . the driver, the standard-bearer who sat beside him, one of the guards . . . gave a yell of alarm and all the weapons in the car clacked to the firing-ports, even before Gordon could see what had caused the outcry. Then Korkhann pointed to a long hill-slope ahead.

"See over there, among the trees . . ."

There were things standing in the shadowed glades, a sinuous massing of shapes completely unidentifiable to Gordon's eyes. The men in the car had fallen silent. The soft thrumbling hiss of the airfoil jets sounded very loud in the quiet, and then across it there came one clear cry from a silvery horn, sweet and strange, running like foxfire along the nerves.

And, at that moment the host swept toward them down the hillside.

IV

LIANNA's voice sounded close to Gordon, sharp and urgent. "Do not fire!"

Gordon was about to protest. Korkhann nudged him and whispered, "Wait . . ."

The creatures poured in a lithe and sinuous flood along the slope, spreading out and around to encircle the car, their strange shapes still made indistinct by the barred shadowings of the trees. The air rang with cries, a hooting and shrilling from unhuman throats that seemed to Gordon to be full of triumph and a cruel laughter. He strained his eyes. They were large creatures. They went on four feet, but softly, not like hooped things, springing instead like great, long-legged cats, and they appeared to carry riders . . .

No. He could see some of them now quite clearly, burnished copper and ring-spotted and smoke-colored and glossy black, and his stomach gave a lurch, not because they were hideous . . . they were not, and even in that moment of shock he was struck by their outlandish beauty . . . but because they were so improbably strange. Animal and what he had taken for rider were, centaur-like, one flesh, as though a six-legged form of life had decided to walk at least partly upright, adapting head and torso



and forelimbs to a shape almost human except for the angular slenderness. Their eyes were large, slanted and glowing, cat-eyes with keen intelligence behind them. Their mouths laughed, and they moved with the joy of strength and speed, their upper bodies bending like pliant reeds.

"The Gernn," whispered Korkhann. "The dominant race of this planet . . ."

They were all around the car now, which had slowed almost to a standstill, Gordon caught a glimpse of Lianna's profile, cut from white stone, looking straight ahead. The tension inside the car was rapidly becoming painful, tangible as the build-up of forces just before one small spark sets off the explosion.

He whispered to Korkhann, "Can you get from their minds what their intentions are?"

"No. They're telepaths too, and far more adept at it than I am. They can guard their minds totally . . . I couldn't even sense that they were there, before we saw them. And I think they're shielding someone else's mind as well . . . ah!"

Gordon saw then that he had been wrong. One of the Gernns did carry a rider.

A young man, only a few years older than Lianna, and as light and lithe and spare as the Gernns

themselves. He was clad in a tight-fitting suit of golden russet and his brown hair fell long around his shoulders, wind-roughened and streaked by the sun. The silver horn was slung at his side. He clung burr-like to the back of a huge black-furred male, who bore him lightly to the forefront of the host. He lifted his arms and flung them wide, smiling, a handsome young man with eyes like sapphires.

His eyes seemed to Gordon more strange and fey than the cat-eyes of the Gernns.

"Welcome!" he cried. "Welcome to Teyn, cousin Lianna!"

She inclined her head. The tension ebbed. Men began to breathe again, and wipe their sweaty hands and faces. Narath Teyn raised the silver horn to his lips and sounded again that sweet and thrilling note. The Gernn host dissolved into fluid motion, sweeping the car along with it.

TWO hours later, Teyn Hall blazed with light and skirled with music. The hall itself stood high on the slope of a river valley, a great sprawl of native stone and timber with many windows open on the night. Wide lawns ran down to the river bank and the Gernn village that sheltered there among the trees. Above, the night sky dripped fire from the wild auroras born of

proximity to the stellar drift, and in the shaking light strange shapes fled and gambolled across the lawns, or passed in and out through the open doors, or roosted on the broad sills of the windows. Incongruous and ill at ease, six of Lianna's guardsmen stood by the car and watched, and the radioman spoke at intervals into the communicator mike.

Inside, fires burned on huge hearths at each end of the massive banquet hall. Chandeliers poured light from the vaulted ceiling. The air was heavy with the smells of food and wine and smoke and the mingled company. There was only one table, and Gordon sat at it with Lianna and Narath Teyn and Korkhann, who was dignifiedly able to cope with a chair. Most of the guests who filled the hall preferred the rich rugs and the cushions on the floor.

In a cleared space in the center of the hall three hunched and hairy shapes made music, with a kind of pan-pipes and a flat-voiced drum, while two bright red creatures with more arms and legs than anyone needed swayed around each other with mannered grace, their gestures as stylized as Kabuki dancers, their long faces and many-faceted eyes like red laquered masks. The drum beat picked up, the pipes shrilled higher. The scarlet legs and arms moved faster and

faster. The dancers swirled and swayed hypnotically, dissolving into a blur before Gordon's eyes. The heat was terrific, the dry *fauve* smell of the packed unhuman bodies almost terrifying. Narath Teyn leaned over to speak to Lianna, and Gordon heard her retort.

"I've come here for an understanding, cousin, and I mean to have it. All this is by the way."

Narath Teyn bowed his head, all grace and mockery. He was dressed now in green, his long hair held with a golden circlet. The dancers reached an impossible climax, followed by an abrupt and stunning cessation of both movement and music. Narath Teyn rose, holding out flagons of wine. He shouted something in a hissing, clacking sing-song and the scarlet ones answered, bowing, and scuttered toward him to accept their flagons. A storm of noise burst out as the guests applauded in their several ways.

Underneath the racket Gordon spoke to Korkhann. "Where does he get his ships?" he asked. "And his men?"

"There is a town and a spaceport on the other side of this world. There is much trade between these wild systems and he controls it all. In his own way he is rich, and powerful. Also he . . ."

The noise in the hall died away as another sound intruded . . .

the long whistling far-off roar of a space cruiser dropping toward a landing. Gordon saw Lianna stiffen, and his own nerves snapped even tighter.

"Well," said Narath Teyn, glancing skyward with innocent amazement, "it seems that more guests are on their way. Always a flood after a long drought!"

He dropped into a guttural tongue and pounded on the table, laughing, and the big black-furred Gern who had carried him sprang into the open space deserted by the dancers. He had been introduced to Gordon as Sserk, chief of the local clan of the Gern and second under Narath Teyn. He moved around the circle now in a ritual movement, slowly, lifting each lion-clawed foot high, his hands held crossed above his head and each one with a knife in it. The rhythm of his movement was picked up by the voices of the Gern, becoming a sort of yowling chant that ended every so often in a deep grunted *ough!*, only to begin again when Sserk resumed his pacing. Narath Teyn sat down, looking flushed and pleased, and spoke again to Lianna.

"Also," whispered Korkhann dryly, "as I was about to say, I suspect that he has allies."

Gordon swore very quietly under his breath. "Can't you read anything in his mind?"

"The Gern guard him. All I

read is satisfaction, and that you may see for yourself, on his face. I'm afraid we're in for . . ."

A HARSH scream cut across the chanting and a second Gern, a young male with spotted flanks and very powerful haunches, leaped into the circle and began a prancing counter movement, holding his two knives high. His eyes were fixed on Sserk's, drunken amber, wide and shining.

The chanting took on a deeper note. Elsewhere in the room it grew quiet. Grotesque heads craned forward, strange limbs shifted and were still. The two Gern circled, balancing. The servitors, mostly young females of the tribe with the baby fur still fluffy on them, stopped running about and stood together, watching with big excited eyes.

Sserk sprang. The knives flashed, were caught and parried, and instantly Sserk's haunches dropped and his forepaws rose, one feinting with quick strokes while the other lashed. The spotted male spun lightly out of reach and reared himself, his knives darting and clashing as Sserk parried in his turn, then leaped clear of the raking claws. They began to circle again, stamping softly, their haunches quivering.

Only Narath Teyn was not watching the fencers, Gordon

saw. He was waiting for something . . . someone . . . and his strange fey eyes were bright with a secret triumph. Lianna sat as proud and undisturbed as though she were in her own hall at Fomalhaut, and Gordon wondered if underneath that calm she was as frightened as he.

The duel went on, it seemed interminably. The slever hands, the murderous swift paws, the sinuous bodies darting, leaping high. The eyes alight with the pleasure of battle that was not quite to the death. After a while there was blood, and a while after that there was a lot more of it, so that the spectators close to the circle were spattered with it, and the chanting became more of a simple animal howling. In spite of himself, and ashamed of it, Gordon felt the ancient cruel excitement rise in him, found himself leaning over the table, watching tensely each lithe maneuver, grunting in sympathy with the blows. In the end the spotted male flung down his knives and took his torn flanks dripping to the door and out of it as fast as he could go, while Sserk screamed victory and the Gerrn crowded around him with wine and praise and cloths to stop his wounds. Gordon, feeling a little sick now that the excitement was past, was reaching for his own wine-cup when he felt Korkhann touch him.

"Look, in the doorway . . ."

A tall man stood there, clad in black leather with the symbol of a jewelled mace aglitter on the breast, and a cap of black steel with a plume in it, and a cloak of somber purple to sweep to his heels. There was someone, or something, behind him.

Gordon caught Lianna's sharp intake of breath, and then Narath Teyn had sprung up and was pounding for silence, shouting a welcome to the new-come guest.

"Cyn Cryver, Count of the Marches of Outer Space! Welcome!"

THE Count strode into Teyn Hall and the Gerrn made way for him respectfully. And now Gordon saw that his companion was dressed in a cowed robe of shimmering gray that covered him, or it, completely from head to foot. The form beneath the flowing cloth seemed oddly stunted, and it moved with a fluid gliding motion that Gordon found distinctly unpleasant.

The Count removed his cap and bent over Lianna's hand. "A most fortunate coincidence, Lady! Fortunate for me, at least. I hope you'll forgive me for choosing the same time to visit your cousin."

Lianna said sweetly, "The ways of coincidence are indeed marvelous. Who shall question

them?" She withdrew her hand. "Who is your companion?"

The cowed creature bobbed politely and made a thin hissing sound, then glided away to a relatively quiet corner behind the table. Cyn Cryver smiled and looked at Korkhann.

"One of the Empire's more remote allies, Lady, who out of courtesy keeps himself veiled. He occupies with me much the same position as does your minister Korkhann with you."

He acknowledged introduction to Gordon and sat down. The feasting went on. Gordon noticed that Korkhann seemed tense and distracted, his clawed fingers opening and closing spasmodically around his wine-cup. The air grew hotter and noisier. In the cleared space two young Gernn, without knives, began to circle and prance, batting at each other half playfully. At the far end of the hall a fight broke out between two members of different species and was promptly smothered. The pipers and drummers were at it again, and a ragged-looking creature with leathery wings flapped up onto the carved balustrade of the great stair and began a rhythmic screaming that might have been song. Yet underneath all this Gordon seemed to sense an uneasiness, as though a shadow had crept across the festivities. Sserk and some of the other ma-

ture Gernn appeared to have lost their desire for drink and jollity. One by one they began to withdraw, melting unobtrusively away through the unruly crowd.

Gordon wondered if they, like himself, felt the presence of the cowed stranger as a breath of cold wind along the spine. The corner where the creature squatted was now otherwise deserted, and the area seemed to be widening. Gordon shivered, unable to rid himself of the feeling that the damned thing was staring straight at him from behind its blank gray draperies.

Out in the circle one of the young Gernn clipped his opponent too enthusiastically, bringing blood, and in a moment the claws and fur were flying in earnest. Lianna rose.

"I will leave you to your pleasure, cousin," she said icily. "Tomorrow we will talk."

Grabbing at the chance to escape, Gordon was at her elbow before she had finished speaking. But Narath Teyn insisted on escorting her, so that Gordon had no choice but to trail them up the great staircase, with Korkhann stalking beside him. The noise from the hall below diminished as they walked down the vaulted corridor.

"I'm sorry if my friends offended you, cousin Lianna. I forget, having lived with them all my life, that others may not . . ."

"Your friends don't offend me at all," said Lianna, "if you mean the non-humans. You offend me. Cyn Cryver offends me."

"But cousin . . . !"

"You're a fool, Narath Teyn, and you're playing for stakes far beyond your capacity. You should have stayed content here in your forests with your Gernn."

Gordon saw Narath Teyn's face tighten. The blue fey eyes shot lightning. But his composure never wavered. "How fortunate that a crown conveys all wisdom to its wearer. I shall not argue."

"Your mockery seems ill-placed, cousin, since you're willing to do murder for that crown."

Narath Teyn stared at her, startled. He did not deny it, nor did she give him a chance to. She pointed to the other half of her twelve guardsmen, who were posted outside her door.

"I would advise you to explain to Cyn Cryver, in case he does not understand, that I am well guarded by loyal men who cannot be drugged, bribed, or frightened from their posts. They can be killed, but in that case you must also kill their comrades below, who keep in constant touch with my cruiser. If that contact is broken, Fomalhaut will be instantly notified, and a force will come at once from the cruiser. Cyn Cryver might use his forces to stop it, but neither you nor he

could gain anything by that but ultimate destruction."

Narath Teyn, in a queer husky voice, said, "Have no fear, Lady."

"I have none," she said. "I bid you good night, cousin." She swept into her apartment and the guard closed the door behind her. Narath Teyn gave Gordon and Korkhann a blank glare and then turned and strode away down the corridor.

Korkhann took Gordon's arm and they walked on toward their own quarters. Gordon started once to speak and Korkhann stopped him. He seemed to be listening. His urgency communicated itself to Gordon and he made no protest when Korkhann urged him on past their own doors, on faster and faster toward the far end of the corridor where it was deserted and quiet and almost dark, and there was a back stair, winding down.

Korkhann pushed him to it, with a strange desperation. "For the moment we're not being watched . . . I must get down to the car, get word to Harn Horva . . ."

Gordon hesitated, his heart thundering now with alarm. "What . . ."

"I understand now," Korkhann said. "They don't plan to kill Lianna." His yellow eyes were full of horror. "They plan something . . . far worse!"

GORDON started back. "I'm going to get her out of here."

"No!" Korkhann caught him. "She's being watched, Gordon! There are Gernn hidden in the rooms next to hers. They'd give the alarm at once . . . we'd never get out of the building."

"But the guards . . . !"

"Gordon, listen. There is a force here that the guards can't fight. The gray stranger who came with the Count . . . I tried to touch its mind, and I was thrown back by a shock that half stunned me. But the Gernn are stronger. Some of them got through, a little way at least. I know, because they were so shaken that they dropped their own guard. Did you see how Sserk and the others left? They're afraid, sick-afraid of that creature, and the Gernn are not a timid folk." He was speaking so rapidly and in such desperation that Gordon had difficulty understanding him. "Sserk looked at Lianna. As I say, his own mind was unguarded, for the moment. He was seeing her as a mindless, blasted doll, and feeling horror, and wishing that she had not come."

Now Gordon felt a cold sickness in himself. "You mean that thing has the power to . . ."

"It's like nothing I've ever felt before. I don't know what that

being is, or where it comes from, but its mind is more deadly than all our weapons." He started down the stair. "Their plan still depends on secrecy. If Harn Horva knows, and sends word to Fomalhaut, they wouldn't dare . . ."

Probably, Gordon thought, yes. But Harn Horva could also send more men and more guns, too many for even the gray stranger to handle all at once. There was a copter in the cruiser's hold. Help could be here in no more than thirty minutes, perhaps less. He flung himself after Korkhann.

The stairway led them winding down to a stone passage and a small door. They went through it with the sounds of revelry dim in their ears, into the warm night behind Teyn Hall, and then they ran, keeping close in the shadows. When they reached the front corner they stopped and looked cautiously around it.

The front of Teyn Hall still blazed with light, and merrymakers still swarmed in and out of the open door, though they seemed fewer now. The ground-car stood exactly as before, with the six guards around it and the driver and radioman visible inside.

Gordon started forward.

Korkhann caught him. "It's too late. Their minds . . ."

In the instant Gordon lingered he saw what might have been the

flicker of a gray robe gliding past a group of Gernn and back into the hall. Then inside the car the radioman leaned forward and spoke into the mike.

"Look there," said Gordon, "they're all right, he's keeping the contact." He pulled free and ran toward the car.

He had taken perhaps five full steps when one of the guards saw him, and turned, and raised his weapon, and Gordon saw his face clearly in the window-light. He saw the others turning one by one. He set his heels in the grass and fled, back to the shelter of the corner. The guards lowered their weapons and resumed their posts, watching with glassy uncaring eyes the shapes that leaped and scurried across the lawns and through the groves of trees.

"Next time," Korkhann said, "listen to me."

"But the radioman . . . !"

"Contact will be carried on as before. Do you suppose the Gray One can't manage so simple a thing as that?" They retreated along the dark back wall. Korkhann beat his hands together softly, in anguish. "There's no hope now of getting word through. But we must do something, and quickly . . ."

Gordon looked up at the high windows, where Lianna was. Where perhaps the gray stranger was already bobbling up the

great staircase to the corridor, to strike the minds of Lianna's guards into passive jelly. Where the Gernn lay hidden in dark rooms, watching the prey.

The Gernn.

Suddenly Gordon turned and ran away across the wide lawns that sloped to the river and the groved trees and the odd round roofs of the Gernn village. Korkhann ran beside him and for once Gordon was thankful for telepathy. He did not have to waste time explaining.

THEY came in among the trees. Alternate shadow and shaking light from the aurora, intimate unfamiliar sounds of a village going about its affairs. And then there was a gathering of half-seen forms around them, the menacing soft tread of great paws. In the fire-shot gloom above him Gordon could see the narrow heads looking down at him, cat-eyes eerily catching the light.

He was fleetingly astonished to realize that he was not in the least afraid. There was no longer any time for that. He said to the Gernn, "My mind is open to you, whether you understand my words or not. I come to see Sserk."

There was a rustling and stirring among them. A black shape drifted to the fore and a slurred harsh voice said,

"Both your minds are open to me. I know what it is you want, but I can't help you. Turn back."

"No," said Gordon. "For the love you bear Narath Teyn, you will help us. Not for us, not for the Princess Lianna, but for his sake. You have touched the mind of the gray stranger . . ."

The Gernn stirred uneasily, growling. And Korkhann said suddenly, "Cyn Cryver and the Gray One . . . who truly leads, and who follows?"

"The Gray One leads," said Sserk grudgingly, "and the Count follows, though he does not know it yet."

"And if Narath Teyn is king of Fomalhaut, who will lead them?"

Sserk's eyes glowed briefly in the aurora-light. Then he shook his head. "I can't help you."

"Sserk," said Gordon. "How long will they let Narath Teyn rule? He wants power for the non-humans, but what do they want?"

"I could not see that far," said Sserk, very softly, "but whatever it is, it is not for us."

"Nor for Narath Teyn. They need him because he's the legitimate heir, if the Princess dies or is rendered unfit . . . but you know what will happen to him in the end. *You know*, Sserk."

He could feel now that Sserk was trembling. He said, "If you

love him, save him." And he added, "You know that he's not altogether sane."

"But he loves us," said Sserk fiercely, and his great paw rose as though to strike Gordon. "He belongs to us."

"Then keep him here. Otherwise, he is lost."

Sserk was silent. The breeze rustled in the tall trees, and the Gernn swayed where they stood, uneasy and disturbed. Gordon waited, his mind strangely still, occupied distantly with the last resort. If the Gernn refused, he would find a weapon and try his best to kill the gray stranger . . .

"You would not live to press the firing stud," said Sserk. "Very well. For his sake . . . For his sake, we'll help."

Sweat broke out on Gordon. His knees turned weak. "Then hurry," he said, and turned to run. "We must get her out before . . ."

The Gernn blocked his way. "Not you," Sserk said. "Stay here, where we can guard your minds, as we've done since you came." Gordon started to protest, and Sserk grabbed him roughly, shook him as an impatient father might shake a child. "Our people watch her. We may get her out, you can't. If you go back you'll give us all away and all will be lost."

"He's right," Korkhann said. "Let them go, Gordon."



THEY went, four of them with Sserk at their head, and Gordon watched them bitterly as they raced away along the slope of the lawn. The other Gerrn closed around them, and Korkhann said, "They'll try to shield our minds. You can help them, by thinking of other things . . ."

Other things. What other things were there in the world that mattered? Still, Gordon did his best, and the minutes trickled by with the beads of icy sweat that ran on him, and suddenly there was an outcry, rather faint and confused, from Teyn Hall and then a crackle of shots. Gordon started wildly, felt the same shock run through the Gerrn, and a moment later Sserk came plunging in among the trees. He bore a struggling figure in his arms. Behind him came only three of his companions, and one of them lurched aside and sank to the ground.

"Here," said Sserk, and thrust Lianna into Gordon's arms. "She does not understand. Make her, quickly, or we all die."

She fought him. "Are you behind this, John Gordon? They came through a secret door, pulled me out of bed . . ." She strained against his hands, her body warm and angry in a thin nightdress. "How dare you presume to . . ."

He slapped her, not quite dispassionately. "You can have me

shot later if you want to, but right now you'll do as I tell you. Your mind depends on it, your sa . . ."

It hit him then, a hammer stroke that stunned his mind and rocked it quivering toward the edge of a dark precipice. Lianna's stricken face faded before his eyes. Someone, Korkhann he thought, let out a strangled cry, and there was a deep groaning from among the Gerrn. Gordon had a dim sense of forces beyond his understanding locked in terrible struggle, and then the darkness lifted somewhat and he heard Sserk crying,

"Come, quickly . . ."

Gerrn hands pawed and plucked, urging at him. He helped swing Lianna up onto Sserk's back, and was half lifted himself onto the furred lean withers of another big male. The village seemed to have exploded into panic. Females with their young were running wildly about. Sserk sprang away through the trees with eight or ten of the older males following. Gordon hung on with difficulty as his mount fled through belts of forest, lunging and scrambling up and down the steep places. He saw Korkhann borne more lightly on the back of another Gerrn and ahead Lianna's nightdress fluttered in the wind of Sserk's going. Overhead the aurora flamed, scarlet pink and

ice green and angelic white, remote and beautiful.

Behind them there was noise and commotion, and there was something else. Fear. Gordon's inner being crouched and cringed, awaiting a second blow. He could picture the gray stranger, moving with its queer stunted agility, the cowled robe fluttering . . .

And it came again. The hammer stroke. It was bearable to Gordon, but he saw Lianna reel and almost fall as the Gernn closed around her. This time the bolt had been discharged directly at her.

Then, more quickly than before, the force weakened and fell away.

"Thank the gods," said Korkhann hoarsely, "the thing does have its limitations. The power weakens with distance."

Sserk said, "But our minds lose strength also, from weariness."

He ran faster, bounding through the glades with the girl clinging tightly to his shoulders. The others quickened their pace to match his, their bodies stretching. Yet it seemed to Gordon that they were only crawling, through endless miles of golden woodland under the burning sky.

All at once he said, "Listen . . ."

There was a new sound far

away, a soft rushing noise as though a wind blew through the forest.

Korkhann said, "Yes, the ground-car. The Gray One follows."

THE Gernn sped faster, circling farther from the roadway. But they could not lose the rushing whisper that came relentlessly closer. And Gordon knew without need of telepathy that the Gernn were afraid, already flinching from the next blow before it fell.

A last scrabbling of clawed feet up a slope and the edge of the forest was there. The shuttered buildings of the port, the long slim shapes of the two cruisers, one blazoned with the White Sun, the other with the Mace, stood silent in the shaking glare of the aurora. Both had their ports open and lighted. Gordon slid to the ground, catch-catching Lianna as she half fell from Sserk's back.

"The Gray One is close," said the Gernn, his flanks heaving.

Gordon could no longer hear the air-jets. The car had stopped somewhere short of the cleared space. The hair on his own neck bristled. "We're grateful," he said to the Gernn. "The Princess will not forget."

He tightened his arm around Lianna and turned with her to run. Behind him he heard Sserk

say, "What we have done, we have done. So be it." And then Korkhann cried out, "Don't leave us now, or you'll have done it for nothing! I can't protect her all alone . . ."

Gordon fled with Lianna out across the cracked concrete apron, his whole mind and soul fixed on the light of the open port. He heard Korkhann's lighter footfalls pattering behind him. For a moment he thought that after all the Gray One had given up and that nothing was going to happen. And then with a silent thunderclap the darkness came and beat him down floundering to his knees.

Lianna slipped away from him. He groped for her by sheer instinct, hearing her whimper. He fought, blind and squirming, across vast heaving blacknesses toward one far-off spark of light.

There were hands and voices. The spark brightened, growing dizzily. Gordon surfaced through cold ringing dimensions of dread, saw faces, uniforms, men, saw Lianna upheld in Harn Horva's arms, felt himself lifted and carried forward. Far off there was a whistling rush as of a balked and angry wind retreating. And two men carried Korkhann past him, half conscious.

Harn Horva's voice roared out above all, "Prepare for take-off!"

Gordon was only partly aware of the clanging hatches, the

warning hooters and the roaring thrust of the launch. He was in the lounge and Lianna was clinging to him, her face bloodless and her eyes wide, trembling like a frightened child.

Later, after the cruiser had leaped up into the sky and Teyn was dropping fast behind them, Gordon still held and soothed her. By then, Korkhann had come back to consciousness. His eyes were haunted but he said, with a kind of haggard pride,

"For a moment . . . for a moment, I did it, all alone!"

"Korkhann, who . . . what . . . was it?" said Gordon. "The Gray One."

"I think," whispered Korkhann, "that it was not of this universe. I think an ancient evil has awakened. I . . ." He bent his head, and would say no more.

Gordon thought, I remembered the beauty in this wider world but I forgot the peril and the terror of it. Let it be so. For it is better than the sordid dream in which I was trapped.

That was the dream, Keogh! The delusion that one little space of time on one little planet was all that mattered, and that the vast ocean of future time and space and all the wonder and terror it might hold, did not matter at all. That was the dream, and he had awakened from it, and he would not dream that dream again.

THE END



Galactic Area 8, No. 62: Fomalhaut II.

Life-forms of Intelligence Level K or above on Fomalhaut II fall into five distinct species and seven sociocultural races.

The large and fertile North-

western Continent is dominated by:

Species I (Small hominids):
 A) Gdemiär (Gdem) Highly intelligent troglodytic hominids, with urban and hieratic society modified by partial colonial te-



By **URSULA K. LE GUIN**

*With a touch as light as the windsteed's flight . . .
with a sense of the love that transcends
the different Life-forms at the other end of
night . . . Ursula Le Guin writes of a jewel, of a
woman, and of her doing and undoing.*

lepathy, and technologically oriented culture. Technology is being enhanced under strict control; native hierarchs are empowered to keep and employ an automatic messenger-ship to and from New South Georgia. Status C.

B) Fiia (Fian) Highly intelligent hominids with village and nomadic societies, partial colonial telepathy and evidence of longrange TK. A-technological and evasive, but fluidity of culture patterns more promising than rigid set of race IA. Currently untaxable. Status E-query.

Species II (Average hominids):

Liiuar (Liu) Highly intelligent hominids with urban society, blocked technology, feudal-heroic culture. Horizontal social cleavage into two pseudo-races: (a) Olgyior, "midmen, underlings" and (b) Angyar, "hillmen, lords." Segregation has selected toward a light-skinned black-haired type (Olgyior) and a very tall, brown-skinned, yellow-haired type (Angyar)—

"That's her," said Rocannon, looking up from the *Abridged Handy Pocket Guide to Intelligent Life-forms* at the very tall, brown-skinned, yellow-haired woman who stood halfway down the long museum hall. She stood still and erect, crowned with bright hair, gazing at something in a display-case. Around her

fidgeted four uneasy and unattractive dwarves.

"I'd forgotten Fomalhaut II had all those people besides the trops," said Ketho, the curator.

"Well," said Rocannon, "now at least we know what she is."

"I wish there were some way of knowing *who* she is . . ."

* * *

SHE was of a very ancient family, a descendant of the first kings of the Angyar; for all her poverty her hair shone with the pure, steadfast gold of her inheritance. The little people, the Fiia, bowed when she passed them, even when she was a barefoot child running in the fields, the light and fiery comet of her hair brightening the troubled winds of Kirien.

She was still very young when Durhal of Hallan saw her, courted her, and carried her away from the ruined towers and windy halls of her childhood to his own high home. In Hallan on the mountainside there was no comfort either, though splendor endured. The windows were unglassed, the stone floors bare; one might wake at dawn in cold-year to see snow drifted up in one's room to the windowsill. Durhal's bride stood with narrow bare feet on the snowy floor, braiding up the fire of her hair and laughing at her young hus-

band in the great gold-framed mirror he had hung in their room. That mirror, and his mother's bridal-gown sewn with a thousand tiny crystals, were all his wealth. Some of his lesser kinfolk of Hallan still possessed wardrobes of brocaded clothing, furniture of gilded wood, silver harness for their steeds, armor and silver-mounted swords, jewels and jewelry—and on these last Durhal's bride looked enviously, glancing back at a gemmed coronet or a golden brooch even when the wearer of the ornament stood aside to let her pass, deferent to her birth and marriage-rank. Fourth from the High Seat of Hallan Revel sat Durhal and his bride Semley, so close to Hallanlord that the old man often poured out wine for Semley with his own hand, and spoke of hunting with his grandson Durhal, looking on the young pair with a grim unhopeful love. Hope came hard to the Angyar since the Strangers had come in their windships and put an end to the old ways and wars, exacting tribute for their greater war that was to be fought with some strange enemy, somewhere in the hollow places between the stars, at the end of time. "It will be your war too," they said, but for two generations now the Angyar had sat idle in their revelhalls. They could hunt in the Forests and windride over all the West-

ern Lands, but they must watch their swords rust, their sons grow up without ever striking a blow in battle, and their daughters marry poor men, even midmen, having no dowry of heroic loot to bring a noble husband. Hallanlord's face was bleak when he watched the fair-haired couple and heard their laughter as they drank bitter wine and joked together in the gilt-walled, ice-cold, ruinous and beautiful palace of their race.

Semley's own face hardened when she looked down the hall and saw, in seats far below hers, even down among the halfbreeds and midpeople, against pale skins and black hair, the glitter of gems and gleam of gold. She herself had brought nothing in dowry to her husband, not even a silver hairpin. The dress of a thousand crystals she had put away in a chest, for the wedding-day of her daughter, if daughter it was to be.

It was, and they called her Haldre, and when the fuzz on her little brown skull grew longer it shone with stedfast gold, the inheritance of a hundred lords, the only gold that she would ever possess . . .

Semley did not speak to her husband of her discontent. For all his gentleness to her, Durhal was a hard man towards weakness, and she could not have borne contempt from him. But

she spoke to his sister Durossa.

"My family had a great treasure once," she said. "It was a necklace all of gold, with the blue jewel set in the center—sapphire?"

DUROSSA shook her head smiling, not sure of the name either. It was late in warm-year, and they sat together on a stone windowseat high up in the Great Tower, where Durossa's apartment was. Widowed young, childless, she had been given in second marriage to Hallanlord, who was her mother's father. Since it was a kinmarriage and a second marriage on both sides she had not taken the title of Hallanlady, which Semley would some day bear; but she sat beside the old lord in the Revelhall and poured him his wine. Older than her brother Durhal, she was fond of his young wife, and delighted in the bright-haired baby girl.

"It was bought with all the money my forebear Leynen got when he conquered the Southern Fiefs—all the money from a whole kingdom, think of it, for one necklace! Oh, it would outshine anything here in Hallan, surely, even those crystals like eagle-eggs your cousin Issar wears. It was so beautiful they gave it a name of its own; they called it the Seaheart, for the blue stone. My great-grandmother wore it."

"You never saw it?" the older woman asked lazily, gazing down at the green mountainslopes where long, long summer sent its hot and restless winds straying among the forests and whirling down white roads to the seacoast far away.

"It was lost before I was born."

"The Strangers took it in the Great Tax?"

"My father said it was stolen before the Strangers ever came to our realm. He said once an old old midwoman told him that the Fiia would know where it was."

"Those are the little midpeople you have in the south realm, are they not?"

"Little people, but not midpeople. The Fiia are not men. I suppose they're kin to the Clayfolk. But the Clayfolk are said to be ugly and misformed, and the Fiia look like children, only very thin, and wiser. Oh I wonder if they know where the Seaheart is, who stole it and where he hid it! Think if I could come into Hallan Revel and sit down by my husband with the wealth of a kingdom round my neck, and outshine the other women as he outshines all men!"

Durossa bent her head above the baby, who lay studying her brown toes on a fur rug between her mother and aunt. "Semley is foolish," she murmured to the baby, "Semley who shines like a

falling star, Semley whose husband loves no gold but the gold of her hair . . ."

And Semley, looking out over the green slopes of summer to the distant sea, was silent.

But when another coldyear had passed, and the Strangers had come to collect their crushing tax for the war against the world's end and gone off again, and Haldre had grown into a lovely chattering child, Semley brought her one morning to Durosza's sunlit room in the tower. Semley wore an old cloak of blue, and the hood covered her hair.

"Keep Haldre for me, Durosza, I am going south to Kirien for a little time."

"To see your father?"

"To find my inheritance. Your cousins of Harget Fief have been taunting Durhal all this coldyear, and even that halfbreed Parna can torment him because Parna's wife has a satin coverlet for her bed, and a diamond earring, and three gowns, the doughfaced, black-haired trollop! while Durhal's wife must patch her gown—"

"Is Durhal's pride in his wife, or what she wears?"

But Semley was not to be moved. "The lords of Hallan are poor men in their own hall, since this last tax. I am going to bring my dowry to my lord, as one of my lineage should."

"Semley! does Durhal know you are going?"

"My return will be a happy one—that much let him know," said young Semley, breaking for a moment into her joyful laugh; then she bent to kiss her daughter, turned, and before Durosza could speak, was gone like a quick wind over the floors of sunlit stone.

MARRIED women of the Angyar never rode for sport, and Semley had not been from Hallan since her marriage, so now mounting the high saddle of a windsteed she felt like a girl again, like the wild maiden she had been, riding half-broken steeds on the north wind over the fields of Kirien. The beast she rode now over the hills of Hallan was of finer breed—striped coat fitting sleek over hollow, buoyant bones, green cat-eyes slitted against the wind, light and mighty wings sweeping up and down to either side of Semley, revealing and hiding, revealing and hiding the clouds above her and the hills below.

On the third morning she came to Kirien and stood again in the ruined courts. Her father had been drinking all night; just as in the old days, the morning sunlight poking through his fallen ceilings annoyed him, and the sight of his daughter only increased his annoyance. "What

are you back for?" he growled, his swollen eyes glancing at her and away. The golden mane of his youth was quenched, grey strands tangled on his skull. "Did the young Halla not marry you, and you've come sneaking home?"

"I am Durhal's wife. I came to get my dowry, father."

The drunkard growled in disgust; but she laughed at him so gently that he had to look at her again, wincing.

"Is it true that the Fiia stole the necklace Seaheart, father?"

"How do I know? Old tales. The thing was lost before I was born, I think. I wish I never had been. Ask the Fiia if you want to know. Get out, daughter, go back to your husband. Leave me alone here. There's no room at Kirien for girls and gold and all the rest of that story. This is the Fallen Place, the Empty Hall. The sons of Leynen are all dead, their treasures all are lost. Go on your way . . ."

Grey and swollen as the web-spinner of ruined houses, he turned and went blundering towards the cellars where he hid from daylight.

Leading the striped windsteed of Hallan, Semley left her old home and walked down the steep hill, past the town of the mid-men who greeted her with sullen awe, on over fields and pastures to a valley that was green as a

painted bowl and full to the brim with sunlight. In the deep of the valley lay the village of the Fiia, and as she descended leading her steed the little, slight people ran up towards her from their huts and gardens, laughing, calling out in faint, thin voices.

"Hail Halla's bride, Kirienlady, Windborne, Semley the Fair!"

They gave her lovely names and she liked to hear them, minding not at all their laughter; for they laughed at all they said. That was her own way, to speak and laugh. She stood tall in her long blue cloak among their swirling, bowing welcome.

"Hail Lightfolk, Sundwellers, Fiia friends of men!" She laughed too as she greeted them.

They took her down into the village and brought her to one who might have been their chief. There was no telling the age of a Fian, it was hard even to tell one from another and be sure, as they moved about quick as moths round a candle, that she spoke always to the same one. But it seemed that one of them talked with her for a while, as the others looked after her steed, and brought water for her to drink, and bowls of fruit from their gardens of little trees. "O it was never the Fiia that stole the necklace of the Lord of Kirian," the little man cried. "What would the Fiia do with hard gold, Lady? For us there is sunlight in the

warmyear, and in the coldyear the remembrance of sunlight; the yellow fruit, the yellow leaves in end-season, the yellow hair of our lady of Kirien; no other gold."

"Then it was some midman stole the thing?"

Laughter rang long and faint about her. "How would a midman dare, in those days before the Strangers came? O Lady of Kirien, how the great necklace was stolen no mortal knows, not man nor midman nor Fian nor any among the Seven Folk. Only dead minds know how it was lost, long ago when Kireley the Proud whose great-granddaughter is Semley walked alone by the caves of the sea. But it may be found perhaps among the Sunhaters."

"The Clayfolk?"

A louder burst of laughter, nervous.

"Sit with us, Semley, sun-haired, returned to us from the north." She sat with them to eat, and they were pleased with her graciousness as she with theirs. But when they heard her repeat that she would go to the Clayfolk to find her inheritance, if it was there, they began not to laugh; and little by little there were fewer of them around her. She was alone at last with perhaps the one she had spoken with before the meal. "Do not go among the Clayfolk, Semley," he said,

and for a moment her heart failed her. The Fian, drawing his hand down slowly over his eyes, had darkened all the air about them. Apples lay ash-white on the plate, all the bowls of clear water were empty.

"Long ago we parted," said the slight, still man of the Fiia. "Longer ago we were one. What we are not, they are. What we are, they are not. Think of the light and the grass and the apple trees, Semley; think that not all roads that lead down, lead up as well."

"Mine leads neither up nor down, O kind host, but only to my inheritance—that my husband may be proud, and my child free. I shall go to it where it is, and return with it."

The Fian bowed, laughing a little.

Outside the village she mounted her striped windsteed, and crying farewell in answer to their calling, rose up into the wind of afternoon and flew southwestwards towards the caves down by the rocky shores of Kiriensea.

SHE feared she might have to walk far into those tunnel-caves to find the people she sought, for it was said that the Clayfolk never came out of their caves into the light of sun or moons. It had been a long ride, and she had landed once to let

her steed hunt tree-rats while she ate a little bread from her saddle-bag. The bread was hard and dry by now and tasted of leather, yet kept a faint savor of its making, so that for a moment eating it in a wild glade of some southern forest she heard the quiet tone of a voice and saw Durhal's face turned to her in the light of the many candles of Hallan. For a while she sat day-dreaming of that stern and vivid young face, and of what she would say to him when she came home with a kingdom's ransom round her neck: "I wanted a gift worthy of my husband, Lord . . ." So when she reached the coast the sun had set, though the stars were not yet out. A mean wind had come up from the west, starting and gusting and veering, so that her windsteed was weary fighting it. She let him glide down on the sand. At once he folded his wings and curled his thick, light limbs under him with a thrum of purring. Semley stood holding her cloak close at her throat, stroking her steed's neck so that he flicked his ears and purred again. The warm fur comforted her hand, but all that met her eyes was grey sky full of smears of cloud, grey sea, dark sand. And then running over the sand a low, dark creature; another; a group of them, squatting and running and stopping.

She called to them. In a moment they were all around her, though keeping a distance from her windsteed. He had stopped purring, and his fur rose a little under Semley's hand. She took the reins, glad of his protection but afraid of the nervous ferocity he might display. The strange folk stood silent, staring, their thick bare feet planted in the sand. There was no mistaking them: they were the height of the Fiia and in everything else a shadow, a black image of those laughing people. Naked, squat, stiff, with lank black hair and grey-white skins, dampish looking like the skins of grubs; eyes like rocks.

"You are the Clayfolk?"

"We are Gdemiar, people of the Lords of the Realms of Night." The voice was unexpectedly loud and deep, and rang out very pompous through the salt, blowing dusk; but, as with the Fiia, Semley was not sure which one had spoken.

"I greet you, Night-Lords. I am Semley of Kirien, Durhal's wife of Hallan, and have come to you seeking my inheritance, the necklace called Seaheart, lost long ago."

"Why do you seek it here, Angya? Here is only sand and salt and night."

"Because lost things are known of in deep places," said Semley; quite ready for a play of

wits, "and gold that came from the earth has a way of going back to the earth. And sometimes the made returns, they say, to the maker." This last was a guess, but it hit the mark.

"It is true the necklace Sea-heart is known to us by name. It was made in our caves long ago, and sold by us to the Angyar. And the blue stone came from the Clayfields of our eastern kin. But these are very old tales, Angya."

"May I listen to them in the places where they are told?"

THE squat people were silent a while; Semley felt they were conferring together, consulting. Their name fitted them, she thought, for they looked like the little soul-idols savage midmen squeezed together out of clay or mud. The deep-voiced one spoke again: "Yes, lady of the Angyar. You may enter the Deep Halls. Come with us now." There was a changed note in his voice, wheedling. Semley would not hear it. She followed the Claymen over the sand, leading on a short rein her bright, sharp-taloned steed.

At the cave-mouth—a toothless, yawning mouth from which a stinking warmth sighed out—one of the Claymen said, "The air-beast cannot come in."

"Oh yes," said Semley.

"No," said the squat people.

"Yes. I will not leave him here. He is not mine to leave. He will not harm you, so long as I hold his reins."

"No," one of the deep voices repeated fiercely, but another broke in, "As you will, Lady," and after a moment of silent hesitation they went on. The mouth seemed to snap shut behind them, so dark it was under the stone. They went in single file, Semley last.

Soon the darkness of the tunnel lessened, and they came under a ball of weak white fire hanging from the roof. Farther on was another, and another; and between these globes long black worms hung, festooned like foul vines along the rock. As they went on these fire-balls grew brighter, and were set closer, till the tunnel was lit with a bright, blank, cold light.

The Claymen stopped at a parting of three tunnels, all blocked by doors that looked to be of iron. "We shall wait, Angya," said one, and eight of them stayed with her, while three passed through one of the doors, locking it again behind them with a clash.

Straight and still stood the daughter of the Angyar in the white, blank light of the strange lamps, her windsteed crouched beside her, flicking the tip of his striped tail. In the tunnel behind her the eight Claymen squatted

on their hams, muttering to one another in deep voices in a tongue she did not know.

The central door swung clanging open. "Let the Angya enter the Realm of Night!" cried a new voice, booming and boastful. A Clayman who wore some shiny clothing over his thick grey body stood in the doorway beckoning to her. "Enter and behold the wonders of our lands, the marvels made by hands, the works of the Night-Lords!"

Silently, with a tug at her steed's reins, Semley bowed her head and followed him under the low doorway made for dwarfish folk. Another glaring tunnel stretched ahead, dank walls shining with the white light, but instead of a way to walk upon its floor carried two bars of polished iron stretching off side by side as far as she could see. On the bars, behind her new guide, rested some kind of cart with metal wheels. Obeying the guide's gestures, with no trace of wonder or puzzlement on her face, Semley stopped into the cart and made the windsteed crouch beside her. The Clayman got in and sat down in front of her, moving bars and wheels about. A loud grinding noise arose, and a screaming of metal on metal, and then the walls of the tunnel began to jerk by. Faster and faster the walls slid past, till the light-globes overhead ran into a blur, and the

stale warm air became a foul wind blowing her hood off her.

The cart stopped. Semley followed the guide up marble steps into a vast anteroom and then a still vaster hall, carved by ancient waters or by the burrowing Clayfolk out of the rock, and lighted with the uncanny cold brilliance. In grilles cut in the walls huge blades turned and turned, changing the stale air. The great rock-enclosed space hummed and boomed with noise, the loud voices of the Clayfolk, grindings and shrill buzzing of turning blades and wheels, and the echoes and re-echoes of all this from the rock. Here all the stumpy figures of the Claymen were clothed in garments imitating those of the Strangers—divided trousers, boots, tunics with signs sewn on the sleeves—though the few women to be seen, hurrying servile dwarfs, were naked. Some of the males were soldiers, bearing at their sides weapons shaped like the terrible light-throwers of the Strangers, though even Semley could see these were merely shaped iron clubs. What she saw, she saw without looking. She followed where she was led, turning her head neither to left nor right. When she was before a group of Claymen who wore iron circlets on their black hair her guide halted, bowed, boomed out, "The High Council of Gdemtyo!"

THERE were seven of them, and all looked up at her with such arrogance on their lumpy grey faces that she wanted to laugh.

"I come among you seeking the lost treasure of my family, the necklace called Seaheart, O Lords of the Dark Realm."

Her voice sounded faint in the racket of the great room.

"So said our messenger, Lady Semley." She could pick out the one who spoke, one even shorter than the others, hardly reaching Semley's breast, but very broad and thick. "We do not have this thing you seek."

"Once you had it, it is said."

"Much is said, up there where the Sun blinks."

"And words are borne off by the winds, where there are winds to blow. I do not ask how the Seaheart was lost to us and returned to you, its makers of old. Those are old tales and old grudges. I only seek to find it now. You do not have it now; but it may be you know where it is?"

"It is not here."

"But where it is, you know."

"It is where you cannot come to it. Never, unless we help you."

"Then help me. I ask this as your guest, Night-Lord."

"It is said, 'The Angyar take; the Fiia give; the Gdemiar give and take.' If we do this for you, what will you give us?"

"My thanks, Clayman."

She stood tall and bright among them, smiling. They all stared at her sullenly, with a heavy grudging wonder, a kind of yearning.

"Listen, woman of the Hill-folk, this is a great favor you ask of us. You do not know how great. You cannot understand. We are a mighty people, that much you can see. Your people do not deign, or dare, to come among us. They know nothing of us. But you know a little now, you have seen a few of our endless marvels, the lights that burn forever, the railway, the machines that clothe us and feed us and make our air and serve us in all things. Know that all these things are beyond your understanding, and know this: we, the Gdemiar, are the friends of those you call the Strangers! Those to whom you, the proud Angyar, pay tribute, are our friends. They do us favors as we do them favors! Now, what do your thanks mean to us?"

"That is your question to answer," said Semley, "not mine. I have asked my question. Answer it, Lord."

For a while the seven conferred together, by word and look; Semley thought that, like the Fiia, these cave-folk must not always use words for talk. They kept looking at her, and as they muttered together a crowd grew around them, drawn silent-

ly, so that she was encircled by hundreds of the matted black heads, and there was no clear space left on the floor of the great booming cavern except directly around her. Her windsteed was quivering with fear and ferocity too long controlled. She stroked the great furry head, whispering, "Quiet now, old friend, bright one, windlord . . ."

"We will take you, Angya, to the place where the treasure lies," said the iron-crowned Clayman, turning to her. "More than that we cannot do. You must come with us to claim the necklace where it lies, from those who keep it. The air-beast cannot come with you. You must come alone."

"How far a journey, Lord?"

His lips drew back and back. "A very far journey, Lady. Yet it will only last but one long night."

"I thank you for your courtesy. Will my steed be well cared for this night? No ill must come to him."

"He will sleep till you return. A greater windsteed you will have ridden, when you see that beast again. Will you not ask where we take you?"

"Can we go soon on this journey? I would not stay long away from my home."

"Yes: soon." Again the grey lips widened as he stared up into her face.

WHAT was done in those next hours Semley could not have retold; it was all haste, jumble, noise. While she held her steed's head a grey toad of a Clayman stuck a long needle into the golden-striped haunch. She nearly screamed at the sight, but her steed merely twitched and then, purring, fell asleep. He was carried off by frightened Clayfolk. Later on she had to see a needle driven into her own arm, perhaps to test her courage, she thought, for it did not seem to make her sleep; though she was not quite sure. There were times she must travel in the railcars, always coming to more caverns, more grey lumpy bodies and matted heads and booming, boasting voices: then out suddenly in the open air, blessed be it! for a minute, but at night and nothing to be seen but the stars. Then she must clamber into some new kind of cart or cave, she did not know which; it was small, full of little blinking lights like rushlights, crowded and clean after the great dank caverns and the starlit night. There another needle must be stuck in her, and then they told her she must be tied down in a sort of flat chair, bound head and hand and foot.

"I will not," said Semley.

But when she saw that the four Claymen who were to be her guides let themselves be tied

down first, she submitted. The others left. Then there was a great roaring, and a long silence; a great weight crushing her, and then no weight; no sound; nothing at all.

"Am I dead?" asked Semley.

"Oh no, Lady," said a voice she did not like.

Opening her eyes she saw the broad face bent over her, the wide lips pulled back, the eyes like little stones. Her bonds had fallen away from her and she leaped up. She felt weightless, bodiless, as if she were a mere gust of terror on the wind.

"We will do you no harm," said the sullen voice or voices. "Only let us touch you, Lady. We would like to touch your hair. Let us touch your hair . . ."

The round cart they were in trembled a little. Outside its one window lay blank night, or was it night, or mist, or nothing at all? One long night, they had said. Very long. She sat motionless and endured the touch of their heavy grey hands on her hair. Later on they would touch her hands and feet and arms, and one her throat: at that she set her teeth and stood up, and they drew back.

"We have not hurt you, Lady," they said. She shook her head.

When they bade her, she lay down again in the chair that bound her down; and when light

flashed sudden at the window, she would have wept at the sight, but fainted first.

* * *

WELL," said Rocannon, "now at least we know what she is.

"I wish there were some way of knowing *who* she is," the Curator mumbled. "She wants something we've got here in the Museum, is that what the trops say?"

"Now don't call 'em trops, Ketho. Gdemiar. They're very proud people, I've had to deal with them several times . . . In fact, in my opinion they're plenty conceited."

"They seem to be rather in awe of her."

"Aren't you?"

Ketho glanced at the tall woman again, then reddened and laughed. "Well, in a way. I never saw such a beautiful alien type in eighteen years here on New South Georgia. I never saw such a beautiful woman anywhere. She looks like a—like a goddess." The red now reached the top of his bald head, for Ketho was a shy, curator-type curator, not given to hyperbole. But Rocannon nodded soberly, agreeing.

"I wish we could talk to her without those tr— Gdemiar as interpreters. But there's no help for it." He went towards their visitor, and when she turned her

splendid face to him he bowed right down, placing his hands on his head, shutting his eyes, and bending both knees, after which he snapped erect again. This was what he called his Allpurpose Intercultural Curtsey, and he performed it with some grace. The beautiful woman smiled and spoke.

"She say, Hail, Lord Stranger," growled one of her squat escorts in Pidgin-Galactic.

"Hail, Lady Angya," Rocannon replied politely. "In what way can we of the Museum serve the lady?"

Across the troglodytes' growling her voice ran like a brief silver wind.

"She say, Please give her necklace which treasure her blood-kin-forebears long long."

"Which necklace?" he asked, and understanding him she pointed to the central display of the case before them, a magnificent thing, a chain of solid gold, massive but very delicate in workmanship, set with one single fiery-blue sapphire. Rocannon's eyebrows went up, and Ketho at his shoulder murmured, "She's got good taste. That's the Fomalhaut Necklace—famous bit of work."

She smiled at the two men, and again spoke to them over the heads of her goon-squad.

"She say, O Lord Strangers, Elder and Younger Dwellers in

House of Treasures, this treasure her one. Long long time. Thank you."

"How did we get the thing, Ketho?"

"From these trogs—trolls, whatever they are: Gdemiar. It says on the card."

"That's right. They've got a bargain-obsession. We had to let them buy the AD-4 they came here on. This was part payment. It's their own handiwork. Since they've been steered to iron and steel work they don't make anything like this, no doubt."

"But they seem to feel the thing is hers, not theirs or ours. And it must be important, or they wouldn't have given up this time-span to her errand. Why, the objective lapse between here and Fomalbraut on an AD-4 must be considerable!"

"I know. I never feel I really understand these hieratic races, Ketho. Perhaps her desire is all-important because they consider themselves totally inferior to her. Or it may be courtesy they're showing her. Or an interspecies war may depend on this damn necklace. Or she may be their prisoner and decoy, despite appearances. How can we tell? . . . Can you give the thing away, Ketho?"

"Oh yes. All the Exotica are technically on loan, not our property, since these claims come up now and then. We sel-

dom argue. Peace above all, until the War comes . . ."

"Then I'd say give it to her."

Ketho smiled. "It's a privilege," he said; and unlocking the case, he lifted out the great golden chain and with a certain air and stateliness, for all he was a small bald curator of sixty-one, held it out to the fair-haired woman.

She did not raise her hands to take it. She bent her head to Ketho, and he slipped the necklace over her hair. It lay like a fuse of fire on the golden-brown throat. She looked up from it with such a blaze of pride, delight, and gratitude in her face that Rocannon stood wordless, and Ketho murmured shyly in his own language, "You're welcome, you're very welcome." She took his hands and then Rocannon's, bowing down her golden head to them. Then, turning, she nodded to her squat guards—or captors?—and drawing her ragged blue cloak about her, paced down the long hall and was gone. Ketho and Rocannon stood looking after her.

"What I feel . . ." Rocannon began.

"Well?" Ketho inquired hoarsely, after a long pause.

"What I feel sometimes, is that sometimes I . . . meeting these people from worlds still outside the League, you know, sometimes . . . that I have as it

were blundered through the corner of a legend, of a tragic myth, even, which I do not understand . . ."

"Yes," said the curator, clearing his throat. "I wonder . . . I wonder what her name is."

SEMLEY the Fair, Semley the Rich, Semley of the Golden Necklace. The Clayfolk had bent to her will, and so had even the Strangers in that terrible city where the Clayfolk took her, the city at the end of the night. They had bowed to her, and given her gladly her treasure from amongst their own.

But she could not yet shake off the sense of those caves about her, where you could not tell who spoke or what they were doing, where the voices boomed and grey hands reached out—Enough of that. She had paid for the necklace, very well. Now it was hers. The price was paid, the past was past.

Her windsteed had crept out of some kind of box, with his eyes filmy and his fur rimed with ice, but by now he seemed all right again, riding a smooth south wind through the bright sky towards Hallan. "Go quick, go quick," she told him, beginning to laugh as the wind cleared her mind's darkness away; "I want to see Durhal soon, soon . . ."

Quick they flew, coming to

Hallan by evening of the second day. Now the caves of the Clay-folk seemed very far behind, as she walked up the broad steps of Hallan between carven figures of heroes, and across the Chasm-bridge, and past the warders who bowed to her, staring at the beautiful, fiery thing around her neck.

She stopped a girl in the Fore-hall, a very pretty girl, by her looks one of Durhal's close kin, though Semley could not call her name to mind. "Do you know me, maiden? I am Semley, Durhal's wife. Will you go tell Lady Durossa that I have come back?"

For she was a little afraid to face Durhal at once alone; she wanted Durossa's support.

The girl was staring at her, her face very strange. But she murmured at last, "Yes, Lady," and darted off towards the Tower.

Semley stood waiting in the gilt, ruinous hall. It seemed very empty; no one came by. Presently an old woman came to her across the stones, holding her arms out, weeping.

"Oh Semley, Semley!"

"But Lady, who are you?"

She had never seen the grey-haired woman, and shrank back.

"I am Durossa, Semley."

She was quiet and still, all the time that Durossa embraced her and wept, and asked if it were true the Clayfolk had captured

her and laid her under a spell all these long years, or was it the Fiia with their strange arts? Then drawing back a little, Durossa ceased to weep.

"You are still young, Semley. Young as the day you left here. And you wear round your neck the necklace . . ."

"I do. I have brought my gift to my husband Durhal. Where is he?"

"Durhal is dead."

Semley stood unmoving.

"Durhal the Silent, my brother, Hallanlord, was killed nine years ago, when the Strangers called on us to put down the war in the east. He was killed in battle, by a midman's spear, for he had little armor for his body, and none at all for his soul, Semley. He fell and lies buried in the eastern fields."

Semley turned away. "I will go to him," she said, laying her hand on the gold chain that weighed down her neck. "I will give him my gift."

"Wait, Semley! Durhal's daughter, your daughter, see her now, Haldre the Beautiful!"

It was the girl she had first spoken to and sent to Durossa: a maiden of nineteen or twenty, with eyes like Durhal's eyes, dark blue. She stood beside Durossa gazing with those steady eyes at this woman Semley, who was her mother, and was her own age. They might have been twin

sisters: their gold hair was the same, and their beauty, and their age. Only Semley was a little taller, and wore the blue stone upon her breast.

"Take it, it's yours, it was for Durhal and Haldre that I brought it from the end of the long night!" Semley cried this out, twisting and bowing her head to get the heavy chain off,

dropping the necklace so it fell on the stones with a cold, liquid clash. "O take it, Haldre!" she cried again, and then weeping aloud turned and ran from Hallan, over the bridge and down the long, broad steps, and darting off eastward into the forest of the mountainside like some wild thing escaping, was gone.

THE END

COMING NEXT MONTH



Brilliant British writer John Brunner sets himself a stern puzzle to solve in his newest novel, which tops the October issue of **AMAZING**. In Enigma from Tantalus, Brunner postulates an alien as large as its entire planet, and able to take on the identity of anyone—or anything. Problem: How to identify the Tantalus as he tries to invade Earth hidden among a spaceship—full of assorted kookie characters.

Sam Moskowitz's SF Profile in the next **AMAZING** analyzes one of the real old pros—**Jack Williamson**.

There will be short stories and our usual features. The October **AMAZING** will be on sale at newsstands September 10.

If we dare to dream at all, dream daringly. That's what Planetary Engineer Bova seems to be saying in this essay—the last of a series—on the ways by which man may someday colonize . . .

The Alien Worlds

By BEN BOVA

IN the first two articles of this series we saw how men might live and work on the Moon, Mars and Venus. In this final installment we consider such alien worlds as Mercury and Jupiter, which are so inhospitable that perhaps not even all our present scientific knowledge can assure us a foothold on them.

Let's look first at the physical conditions on our objectives: Mercury, the planetoids, and the outer planets. The individual environments of each determine the problems that must be faced, and the usefulness of the planet to man—which in turn determines how much man is willing to spend to conquer the environment. Table 1 (see page 69) shows the gross physical characteristics of the planets in question. (We will make the same basic assumption that we did for the planetary engineering of

Mars and Venus: that thermonuclear fusion power plants are available for rocket propulsion and electrical power generation.)

The Uniqueness of Mercury

BECAUSE of its unique combination of small size, proximity to the Sun, "locked" rotation, and accessibility from Earth, Mercury may well turn out to be the most useful and available planet in the solar system, second only to Mars. Surprisingly, even though Mercury is nearly twice as far from us as Venus, round trips to Mercury will actually be less expensive of rocket energy than round trips to Venus. This is because Mercury, with its low gravitational pull, has an escape velocity of only 2.2 miles per second in contrast to Venus' 6.3 and Earth's 7.0. A round trip to Mercury, in-

cluding soft landing, liftoff and return to Earth would require about 25% less rocket energy and propellant than a similar mission to Venus.

Mercury is difficult to observe because of its closeness to the glare of the Sun, and because it keeps one face always pointed toward the Sun—a "locked" rotation as the Moon is "locked" to the Earth. The perihelion temperature at the sub-solar point has been estimated at 700°F: high enough to melt lead, but actually a hundred degrees *lower* than the measured temperature on Venus' surface! The darkside of Mercury must be the coldest place in the solar system. A temperature of -425°F has been estimated, less than 40 degrees above absolute zero.

If the physical conditions on Mercury appear formidable, so do the reasons for setting up permanent manned operations there. Mercury offers astronomers a close-up base for intensive studies of the Sun. True, rocket vehicles could get even closer to the Sun than Mercury's 36-odd million miles. Still, from the surface of the planet the Sun would appear more than twice as large and nearly nine times brighter than it looks from Earth. And just as the Moon is superior to an orbiting space station, Mercury can be superior to a manned spacecraft close to the

Sun. The planet will have its own natural resources. Oxygen is bound to be found in its rocks, and water may well lie frozen on the darkside. A permanent manned base, largely self-sufficient, could be set up on Mercury in much the same manner that Moonbase will be built. Astronomers could then spend as much time as necessary studying the Sun instead of being limited by the supplies that can be stored aboard a spacecraft. No doubt manned probes will be sent spiralling in much closer to the Sun, but they will be supplied, controlled and perhaps even built at Mercury Base.

Astronomers will not be the only scientists interested in Mercury. Geologists and chemists will want to study the high-temperature conditions on the brightside. Physicists will be eager to investigate the cryogenic world on the darkside. The science of ultra-low temperatures has already led to revolutions in propellants, superconducting magnets and even medical research. What newer ideas will arise when man has a cryogenics laboratory that is a few million square miles wide?

If current assumptions about conditions on Mercury and Venus are correct, it may be easier to survive and build a highly-self-sufficient base on Mercury than on our closer, but more in-

hospitable, "sister" world. After all, the surface temperature of Mercury seems to be lower than that of Venus. And Mercury is airless, a positive advantage (believe it or not) over the sand-laden, superhurricane-force winds of unbreathable gases that may well exist beneath Venus' clouds.

The experience of building Moonbase should be enormously helpful in setting up a similar underground base on Mercury. In fact, if a site is chosen near one of the poles on the brightside, the surface temperature should be no higher than about 300°F; not too much more than the 240°F maximum found on the Moon. The base would probably be built near the terminator, the line that divides the nightside from the dayside. Since the planet wobbles slightly in its orbit, the terminator shifts a few hundred miles in the course of Mercury's 88-day-long "year." This gives rise to the so-called Twilight Zone. "Twilight" is hardly the proper word. Since Mercury is virtually airless, the Zone would either be in dazzling sunshine or blind darkness. The sudden and repeated shifts of ground temperature may have produced some highly interesting—and dangerous—thermal erosion in the area of the Zone. The area may be criss-crossed with crevices and chasms; no

place for large-scale construction!

Mercury does offer one source of power that cannot be duplicated elsewhere in the solar system. Most of man's engines simply convert heat into mechanical energy. The bigger the temperature difference between the high-temperature and low-temperature ends of the engine, the more power can be produced. Mercury offers a temperature difference of some 1100°F between its permanently bright and permanently dark sides. Engineers probably will not rest until they have developed a heat engine on Mercury beyond the wildest dreams of their Earth-bound brethren.

Iron Mountains in the Sky

PROPERLY speaking, the planetoids should not be included in a discussion of planetary engineering. These chunks of rock and metal orbiting between Mars and Jupiter are unlikely to be the permanent homes of men from Earth. Yet the planetoids could be immensely important to planetary engineers, especially those who will try to transform Mars into an Earth-like world.

The planetoids have been called "mountains floating in space." Some of them are more like islands a few hundred miles across. But most of them must

be on the order of a mile or so wide, a good size for a mountain. Like the mountains of Earth, the planetoids seem to be rich in natural resources: iron, nickle, magnesium, aluminum, silicon, carbon, sulphur. Thus they could become the solar system's most important source of heavy raw materials: a single five-mile-diameter planetoid of the nickle-iron variety would contain a mass of nearly 20 million *million* tons. More iron than mankind has used since the dawn of history!

Inevitably, there will come a day when a large percentage of Earth's natural resources have been consumed, and it will be cheaper and easier to send "miners" to the planetoid belt than to dig deeper into Earth's crust. For the colonists on Mars the planetoid belt may well represent a source of raw materials completely unavailable on their planet, and too expensive to import from Earth. With small electrical rockets, pieces of planetoids can be sent remotely from their natural orbits into trajectories that will end in satellite orbits around Mars. For a slight investment in retrorockets, the pieces can be soft-landed on the Martian surface. This would be much cheaper than lifting the same tonnages of raw materials from Earth and bringing them to Mars.

Scouting out the most promising planetoids and sampling their mineral wealth will no doubt be done by automated probes, similar to the SURVEYORS and PROSPECTORS now being readied for doing much the same job on the Moon. The probes used in the planetoid belt, though, will be bigger, much more sophisticated, and capable of touching down on hundreds of planetoids before needing refueling.

The probes could leave radio beacons or some other form of signal to guide the human "miners" to the richest planetoids. Getting the metals and other raw materials off the planetoid and into the proper trajectory for Mars or Earth (or Venus or Mercury, for that matter) seems to be a job that will require intelligent men. At this stage of the man-machine competition, it does not seem likely that machinery could handle such a task by itself.

Men will live in the planetoid belt on a temporary or perhaps even semi-permanent basis. It should not be necessary to carve out extensive bases for them. Most likely the ships they come in will be adequate as quarters for their stay in the belt. Raw materials from the planetoids can be converted into life-supporting supplies aboard the ships. The only advantage a planetoid might

offer would be as protection against radiation during periods of intense solar activity. However, the ships that ply the belt will probably carry equipment to generate magnetic fields that will shield the men inside from solar flare radiation.

The Satellite Worlds

AFTER the planetoids, the next objectives in space would most logically be the moons of Jupiter and Saturn. The two giant planets themselves are so utterly foreign to us that it should take man some time before he has the technological ability to probe below their gaudy-colored cloud decks.

Table 2 (page 69) gives the sizes and orbital radii of the known moons of Jupiter, Saturn, Uranus and Neptune. Note that the four Galilean moons of Jupiter (the ones with names), three of Saturn's satellites, and one each of Uranus' and Neptune's, are respectable worlds in their own right. Io and Europa are about the size of our own Moon, while Ganymede, Callisto, Titan and Triton are as big, or even bigger, than Mercury. Titan and Ganymede have atmospheres of their own—mostly of methane. The smaller moons are probably nothing more than frozen puffs of (water) ice, methane and ammonia. The larger ones may pos-

sess rocky cores, but are probably covered with layers of ice.

There are two potential uses for these moons. First, they could supply raw materials for the inner planets. We have seen that water will unquestionably be the most precious resource to be found anywhere in the solar system. These moons probably contain considerable amounts of frozen water that could be shipped to the inner planets, much as the metals and minerals of the planetoids could be. Methane and ammonia, between them, offer the elements hydrogen, carbon and nitrogen. Hydrogen is useful as propellant for nuclear rockets. Carbon and nitrogen will be valuable for fertilizers and other chemical uses. You remember in our discussion of Mars in the last article we even considered the possibility of using nitrogen and carbon (combined with oxygen to make carbon dioxide) to fill out the thin atmosphere of Mars, at the same time that oxygen is being pumped into the Martian air after being liberated from limonite in the soil.

The second obvious use for these moons, the larger ones in particular, will be as sites for permanent bases from which to study the giant planets. The prime requirement for bases so far from home and—more important—so far from the Sun, is the

TABLE 1. THE ALIEN PLANETS

	<i>Mercury</i>	<i>Jupiter</i>	<i>Saturn</i>	<i>Uranus</i>	<i>Neptune</i>	<i>Pluto</i>
Distance from Sun (Earth = 1)	0.39	5.20	9.54	19.19	30.07	39.46
Diameter (miles) (Earth = 1)	3000	86,000	71,500	29,400	23,000	3600(?)
Mass (Earth = 1)	0.38	10.97	9.03	3.72	3.38	0.45(?)
Density (Water = 1)	0.04	318.35	95.30	14.58	17.26	?
Surface Gravity (Earth = 1)	3.8	1.34	0.71	1.56	2.47	?
Gravity at top of Cloud Deck (Earth = 1)	0.27	—	—	—	—	?
Atmosphere	—	2.65 Hydrogen,* Helium,* Methane, Ammonia	1.17 Hydrogen,* Helium,* Methane, Ammonia	1.05 Hydrogen,* Helium,* Methane	1.23 Hydrogen,* Helium,* Methane	?
Temperature (°F)	700 (max.) -450 (min.)	-220 (avg.)	-240 (avg.)	-260 (avg.)	-275 (avg.)	-400(?)
Velocity of Escape (Earth = 7 miles/sec)	2.2	37.82	22.75	13.89	15.87	?

* Deduced from theory

TABLE 2. MOONS OF THE OUTER PLANETS

<i>Planet</i>	<i>Satellite</i>	<i>Diameter (miles)</i>	<i>Mean Distance from Planet (miles)</i>
JUPITER (moons numbered in order of discovery)	V	100	112,600
	I (Io)	2300	261,800
	II (Europa)	2000	416,600
	III (Ganymede)	3200	664,200
	IV (Callisto)	3200	1,169,000
	VI	100	7,114,000
	VII	40	7,292,000
	X	15(?)	7,350,000
	XI	15(?)	14,940,000
	VIII	40	14,600,000
	IX	20	14,850,000
	XII	15(?)	15,000,000
SATURN	Mimas	370	115,000
	Enceladus	460	148,600
	Tethys	750	183,000
	Dione	900	234,000
	Rhea	1150	327,000
	Titan	3550	749,000
	Hyperion	300	920,000
	Japetus	1000	2,210,000
URANUS	Pheobe	200	3,034,000
	Miranda	150	80,800
	Ariel	600	119,100
	Umbriel	400	165,900
	Titania	1000	272,000
NEPTUNE	Oberon	900	364,000
	Triton	3000	220,000
	Nereid	200	5,000,000

need for reliable power. Controlled thermonuclear fusion power will be more necessary than ever to supply heat and light for men and plants, and power for digging and building.

The bases built on these moons will at first be largely underground, although large surface domes will be needed to observe the planets nearby. Raw materials should be no major problem. Hydrogen for the fusion power plants and oxygen to breathe should be abundant on these moons, as will be most of the other lighter elements. Heavier metals and minerals may be brought in from the planetoids. If nuclear power is cheaper than rocket transportation costs, these bases may transmute one element from another in nuclear reactors, rather than import the needed elements.

One intriguing problem is the matter of heat insulation. Consider an underground base carved into a crust of solid ice, which may well be the "ground" of these moons. The base is heated to terrestrial shirtsleeve temperature. What happens to the surrounding ice if this heat leaks out of the base for months, or years? The problem will be not only to keep the base warm inside, but to keep the ice cold outside. Either that, or have the base eventually float away!

In time, man may discover

new and better ways to control his environment. Some non-material way of containing heat—similar to the way a magnetic field can contain an electrically-conducting gas—may eventually be invented. Science fiction writers for years have talked about "energy screens" that could absorb, reflect, focus, or do almost anything with solar energy. Some day physicists may learn to do just this. With energy screens and the power to run them it might be possible to place an impalpable shield around an entire planet or moon and trap solar energy until the surface is heated to comfortable terrestrial temperatures. Of course, if the body in question consists of a few-mile-thick layer of ice, the whole idea becomes questionable. Certainly, energy screens will be invaluable on Mercury where they can create a bubble of Earth-like conditions on either the brightside or darkside. With or without energy screens, though, the moons of the outer planets can be reached and largely self-sufficient permanent bases set up. Then comes the biggest adventure of the entire solar system: the giant planets themselves.

The Jovian Worlds

THE inner worlds of the solar system are called terrestrial because they somewhat resemble

Earth. Even Mercury, weird as it is, is more Earth-like than any of the giant planets. The giants are often called the Jovian worlds, after Jupiter, the largest of them all, the closest to Earth, and therefore the first one we will reach.

The single word that best describes the Jovian planets is *alien*. For example: It would take almost 11 Earths to span Jupiter's diameter, and more than 318 Earths to equal its mass. Yet Jupiter has such a high percentage of light elements that it could nearly float on water—if you can envision a pool 100,000 miles wide! Saturn, slightly smaller than Jupiter and less dense, actually *would* float on water.

What we see of Jupiter is the top of a thickly-clouded atmosphere, composed for the most part of hydrogen and helium. The clouds themselves are predominantly methane and ammonia, both positively identified by spectroscopes on Earth . . . and both highly poisonous to man. The gravitational field at the top of the cloud deck is 2.64 times Earth's sea-level gravity, and increases steadily with depth. The cloud-top temperature averages around -220°F .

What lies below the clouds can only be guessed at. The powerful gravitational field and the effects of increasing pressure probably

combine to turn the atmospheric gases into a liquid state a few hundred miles below the clouds. There might not be any solid surface on Jupiter, merely a gradually-thickening density until liquids finally become solid. Possibly Jupiter contains a deep layer of ices, and beneath that a core of rock and metal—or solid hydrogen. It is also possible that the planet has internal sources of heat, so that it might be warmer beneath the clouds than our Earth-based measurements indicate.

There is no way of knowing for certain until rocket probes are sent below Jupiter's clouds. The clouds themselves are in turbulent motion. This is because the planet, even though nearly 11 times larger than Earth, spins on its axis in slightly less than 10 hours! This frantic rotation whips Jupiter's atmosphere into super-powerful winds that stream across the planet's gigantic disc. The same effect has been seen on Saturn and, to a lesser extent, on Uranus and Neptune.

Despite the forbidding conditions on the Jovian planets, it seems inevitable that man will try to penetrate the clouds of ignorance surrounding them and explore them first-hand. If so, we must consider the possibility of setting up bases—at least temporarily—within Jupiter's murky, turbulent, frigid, gas-liquid at-

mosphere. If man can develop the techniques to survive and explore on Jupiter, the other Jovian planets should present no great problems since they are smaller and their gravitational fields lighter. It is Jupiter's heavy gravity that presents the biggest obstacle to manned operations there.

Incidentally, several scientists have raised the possibility of life existing on Jupiter based on liquid ammonia rather than our familiar water. If so, permanent manned bases will be vitally important to the stream of biologists and biochemists who will want to study Jovian life forms. (The chances for life on Jupiter were discussed in the July and September, 1962, issues of *AMAZING*.)

A manned exploration of Jupiter would probably resemble an underwater expedition more closely than a feat of astronautics. The base headquarters would be a giant, self-contained structure floating freely in the gases-turned-liquid. Its shape would be determined by aerodynamic—or rather, hydrodynamic—considerations. The base probably could not remain at a fixed location. It will drift with the super-powerful winds and currents of Jupiter. Communications, therefore, will be a critically important problem. From this base men will leave on explora-

tory missions, using ships something like a combination between a dirigible and submarine. It is extremely unlikely that a single man could venture outside his ship in anything like a pressure suit. One-man submarines will probably be the smallest piece of equipment used on Jupiter.

To counteract the ever-present pull of 3 *g*'s or more, the ships and the entire base headquarters must be filled with liquid. It might be water, although an even denser liquid would be better. As long as men are on—or in—Jupiter they will remain fully immersed so that they can in effect be weightless. This seems to be the only way available (today) to get around the planet's strong gravitational field. Thus the crew will live like skindivers. They would breathe pressurized air just as deep-diving swimmers do to help equalize the pressure outside their bodies. Teams of skindivers, in the past year or so, have spent weeks living in special underwater quarters under conditions somewhat similar to those that might be expected in the Jovian expedition. A French group, led by the famous Capt. Jacques-Yves Cousteau, has even set up semi-permanent quarters at the bottom of the Red Sea.

Can men from Earth do useful work, or even think straight, in a submerged existence on Jupiter?

If not, then our only hope for penetrating Jupiter's clouds lies with scientific advances only dreamed of today. Perhaps some day in the coming century man may learn to control gravity in the same way he now controls electromagnetic radiation: focus it, reflect it, amplify it, shield against it. After all, gravity is a wave phenomenon that apparently emanates from the atomic nucleus. Physicists are beginning to understand the structure of nuclear particles. Perhaps the payoff of nuclear research will be not only unlimited power from fusion but full control of gravity as well.

Pluto

DISTANT Pluto is such a question mark that it is hard to say anything significant about it. Pluto's orbit is known within a good degree of accuracy. But the physical characteristics of the planet are almost completely

open to question. It seems to be about the size of Mercury. Its mass has been guesstimated at about the same mass as Earth. If so, its density would have to be higher than that of osmium, the densest known substance on Earth. No other planet comes even close to such a density.

Is Pluto a superdense world? With a steady temperature of at least -400°F , who can say what physical conditions might exist there? One point seems likely. Pluto is so weird that scientists will probably want to explore it even before they go to Uranus and Neptune. There is always more to learn from the unusual than the commonplace. Incidentally, a fusion-powered rocket that can accelerate at a steady 1 g to the halfway point and then decelerate at 1 g the rest of the way could reach Pluto from Earth in about 18 days.

(Continued on following page)

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THE first timid steps toward full-scale planetary engineering are actually underway at this moment.

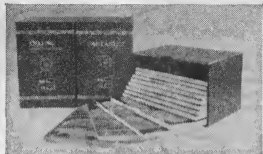
NASA is sponsoring studies to prove the feasibility of extracting water and oxygen from lunar rocks. The Air Force has for some time been financing experimental "Mars farms" where terrestrial plants are grown under simulated Martian conditions. Much more needs to be done, of course, and can be done—here and now.

For example: The limonite cycle for obtaining water and oxygen from the Martian soil can be checked out in detail. The reproduction rate, carbon dioxide consumption, the nutrient needs of airborne algae such as *Nostocaceae* can be examined with an eye of seeing how efficiently such plant life could change the atmosphere of Venus into a terrestrial nitrogen/oxygen mixture.

There are a few million calculations that can be performed on required air pressures, temperatures, etc., for Venus and Mars. Of course rocket probes to the Moon and planets will soon be sending back the fundamental information needed to begin the solid planning of Moonbase—and of the operations that will eventually be set up on Mars and Venus.

We have not discussed the possibilities of using comets for raw materials since they would be handled in much the same way as the planetoids. Nor have we considered J. D. Bernal's suggestion, made during the 1920's, that man might build artificial planets around the Sun at the same distance as Earth's orbit. Such a project, ending with a spherical shell of artificial worlds around the Sun, may be possible in time. But it seems likely that it would be easier to shape the already-existing planets to man's needs and desires.

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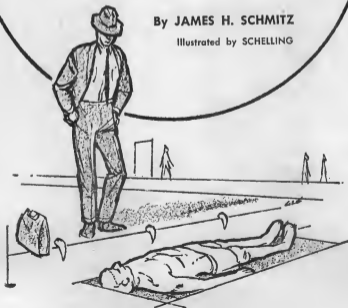
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*If you wipe off a cluttered
blackboard, there is lots of room to imprint
new information. Can a human brain
be treated the same way? Can you make a
superman if you start with a . . .*

CLEAN SLATE

By JAMES H. SCHMITZ

Illustrated by SCHELLING



DR. Eileen Randall put the telephone down, said to George Hair, "It will still be a few minutes, I'm afraid, Mr. Hair." She smiled ruefully. "It's very embarrassing that the Director of ACCED should have to let his own employer, the government's Administrator of Education, wait to see him! But Dr. Curtice didn't know you were coming until an hour ago, of course."

"I quite understand, Dr. Randall," George Hair said politely. Eileen Randall, he thought, was not in the least embarrassed by the situation; and it was not the first time he had waited here to see Curtice. But her attitude interested him. She was belligerently loyal to Curtice, and her manner toward himself, on the other occasions they had met, had been one of cool hostility.

Today, there was an air of excitement about her, and something else which had drawn Hair's attention immediately. She was a lean, attractive, black-haired woman in her thirties, normally quiet, certainly not given to coy ruefulness with visitors. But he would have said that during the fifteen minutes he had been here, Dr. Randall had been playing a game with him, at least from her point of view. Back of it was a new level of self-assurance. She felt, he decided, somewhat contemptuous of him today.

It meant the ACCED group believed they had gained some very significant advantage against him. . . .

"What did you think of the dog?" she asked, smiling.

"An amazing animal!" Hair said. "I would not have believed such a performance was possible. I'm taking it for granted, of course, that the uncanny intelligence it demonstrated in carrying out your instructions is again a result of combined SELAM and ACCED techniques. . . . Or perhaps Dr. Curtice has developed an entirely new educational approach?"

"New in the extent to which selective amnesia was carried in the dog, Mr. Hair," Dr. Randall told him. "In this case, the memory impressions of every experience it had had since its birth were deleted from its brain before retraining began. The training methods otherwise were exactly the ones we have used on dogs for the past six years. The results, as you saw, go far beyond anything we have accomplished with animals before, due to the preliminary complete amnesia."

"Indeed?" Hair said. "I'm sure I've had the impression from Dr. Curtice that it was impossible to induce a complete and permanent amnesia by the use of instruments without actually destroying brain tissue."

Dr. Randall gave him a look of gleeful malice. "It was impossible until early this year, Mr. Hair! That's when Dr. Curtice made the first full-scale tests of several new instruments he's had under development for some time. It's quite possible now." She put her hand out to the telephone. "Should I call the main laboratory again? Of course, they *will* let us know as soon as he"

"Of course," George Hair said. "No, no need to call them again, Dr. Randall." He smiled. "And it isn't really necessary, you know, for you to entertain me while I'm waiting, although I appreciate your having taken the time for it. If there's something else you should be doing, please don't let the fact that I'm here interfere with your work."

THIS was, George Hair told himself, looking out of the fourth-story window of the ACCED Building at the river below, a bad situation. A very bad situation.

It was clear that Curtice intended to use the complete amnesia approach on human subjects next, and Eileen Randall would not have spoken and behaved as she had if the ACCED group weren't already certain they had Wirt Sebert's backing for their plan—possibly even Mallory's.

And he would have to voice his unequivocal opposition to it. He could not do anything else. ACCED had never served any useful purpose but that of a political tool and the purpose had been achieved at an inexcusable expense in distorted lives. When applied to human beings, it was a failure, a complete failure. And now the fact could no longer be covered up by new developments and accomplishments with dogs.

Politically, of course, a promising new development in the program, if it could be presented in a convincing manner, was almost required now. It would be a very poor time to acknowledge failure openly. Governor Wingfield had been using rumors about ACCED as another means of weakening the Administration's position and creating a general demand for new elections; and this year, for the first time in the fifteen years since the Takeover, the demand might grow too strong to be ignored. A public admission that the ACCED program had not produced, and could not produce, the results which had been expected of it might make the difference, as Wingfield understood very well.

ACCED—accelerated education—had been Wirt Sebert's idea to begin with. Or rather, many ideas for it had been

around, but they had never been systematized, coordinated, or applied on a large scale; and Sebert had ordered all that done. After the Takeover, the need for a major evolution of the educational system was obvious. The working details of Earth's civilization had become so complex that not enough people were able to understand them well enough to avoid continuous breakdowns. Immediate changes in simplifying organization, in centralizing communication had been made, which had helped. But they could not be expected to remedy matters indefinitely. What was needed in the long run was an army of highly trained men and women capable of grasping the multifactored problems of civilization as they arose, capable of intelligent interaction and of making the best possible use of one another's skills and knowledge.

ACCED was to have been the answer to that. Find the way, Wirt Sebert had said, to determine exactly what information was needed, what was essential, and then find the way to hammer it into young brains by the hundreds of thousands. Nothing less would do.

So ACCED came into being. It was a project that caught the public's imagination. For three years, a succession of people headed it. Then Richard Curtice was brought in, a man selected

personally by Sebert; and Curtice quickly took charge.

At that time, indications of weakness in the overall ACCED approach already were apparent to those conducting the project. George Hair didn't know about them then. He was still Secretary of Finance—in his own mind and that of the public the second man of the Big Four, directly behind President Mallory. True, Wirt Sebert was Secretary of State, but Hair was the theorist, the man who had masterminded the Takeover which Mallory, Sebert, and Wingfield, men of action, had carried out. He was fully occupied with other matters, and ACCED was Sebert's concern.

Sebert, no doubt, had been aware of the difficulties. ACCED, in the form which had been settled on for the project, was based on the principle of reward and punishment; but reward and punishment were expressed by subtle emotional conditions of which the subject was barely conscious. Combined with this was a repetitive cramming technique, continuing without interruptions through sleep and waking periods. With few exceptions, the subjects were college and high school students, and the ACCED process was expected to accomplish the purpose for which it had been devised in them within four to five years.

Throughout the first two years, extraordinary results of the process were reported regularly. They were still being reported during the third year, but no mention was made of the severe personality problems which had begun to develop among the subjects first exposed to ACCED.

IT was at this point that Dr. Curtice was brought into the project, on Wirt Sebert's instructions. Curtice was then in his late thirties, a man with a brilliant reputation as a psychiatric engineer. Within a year, he was ACCED's director, had selected his own staff, and was engaged in the series of modifications in the project which, for the following decade, would keep the fact that ACCED was essentially a failure from becoming general knowledge. SELAM was Curtice's development, had preceded his appointment to ACCED. He applied the selective amnesia machines immediately to the treatment of the waves of emotional problems arising among ACCED's first host of recruits. In this, as George Hair learned later, SELAM was fairly effective, but at the expense of erasing so much of the ACCED-impressed information that the purpose of the project was lost.

Dr. Curtice and his colleagues had decided meanwhile that the principal source of the troubles

with ACCED was that the adolescent and postadolescent subjects first chosen for it already had established their individual personality patterns to a degree which limited the type of information which could be imposed on them by enforced learning processes without creating a destructive conflict. The maximum age level for the initiation of the ACCED approach therefore was reduced to twelve years; and within six months, the new phase of the project was underway on that basis, and on a greatly extended scale.

Simultaneously, Curtice had introduced a third phase—the transfer of infants shortly after their birth to ACCED nurseries where training by selected technicians could be begun under conditions which were free of distorting influences of any kind. The last presently was announced as the most promising aspect of the ACCED project, the one which eventually would produce an integrated class of specialists capable of conducting the world's economic affairs with the faultless dependability of a machine.

The implication that the earlier phases were to be regarded as preliminary experiments attracted little immediate attention and was absorbed gradually and almost unnoticed by the public.

IT was during the seventh year of the ACCED project that George Hair's personal and political fortunes took a turn for which he was not in the least prepared. There had been a period of sharp conflict within the Administration, President Mallory and the Secretary of State opposing Oliver Wingfield, the perennial Vice President. Hair recognized the situation as the power struggle it essentially was. While his sympathies were largely with Mallory, he had attempted to mediate between the two groups without taking sides. But the men of action were not listening to Hair, the theorist, now. Eventually Wingfield was ousted from the government, though he had too strong and well-organized a following to be ousted from public life.

And shortly afterwards, Mallory explained privately to George Hair that his failure to throw in his full influence against Wingfield had created so much hostility for him, particularly in Sebert's group, that it was impossible to retain him as Secretary of Finance. Mallory made it clear that he still liked Hair as a person but agreed with Sebert that he should play no further major role in the Administration.

It was a bad shock to Hair. Unlike Wingfield and the others, he had developed no personal or-

ganization to support him. He had, he realized now, taken it for granted that his continuing value as an overall planner was so obvious to Mallory and Wirt Sebert that nothing else could be needed to secure his position beside them. For a time, he considered retiring into private life; but in the end, he accepted the position of Administrator of Education offered him by Mallory, which included among other matters responsibility for the ACCED Project.

Hair's first encounter with Dr. Curtice left him more impressed by ACCED's director than he had expected to be. He was aware that the project had been much less successful than was generally assumed to be the case, and his mental image of Curtice had been that of a glib operator who was willing to use appearances in place of facts to strengthen his position. But Curtice obviously had an immense enthusiasm for what he was doing, radiated self-assurance and confidence in ACCED's final success to a degree which was difficult to resist. There was nothing in his manner to suggest that he resented Hair's appointment as his superior; it was the attitude of Eileen Randall and, to a less extent, that of Dr. Longdon, Curtice's two chief assistants, which made it clear from the start that Hair was, in fact, resented.

There were also indications that Wirt Sebert was not pleased with the appointment; and Hair suspected there had been a touch of friendly malice in Mallory's move—a reminder to Sebert that Mallory, although he had agreed to Hair's ouster from Finance, was still the Big Man of the original Big Four. Hair himself had enough stubbornness in him to ignore Sebert's continuing antagonism and the lack of cooperation he could expect from Sebert's proteges in ACCED. He had been somewhat startled when his first survey of the new situation in which he found himself showed that other activities of the Department of Education were of no significance except as they pertained again to the ACCED project. Dr. Curtice evidently had been running the Department very much as he pleased in recent years. It seemed time, George Hair thought, to establish whether ACCED was worth anywhere near the support it was getting from the government.

The Project was now in its seventh year. The initial experiment involving high school and college age groups was no longer mentioned and had almost dropped from the public mind. Hair's check brought him the information that a considerable number of the original subjects were still undergoing remedial



psychiatric treatment at ACCED institutions. The others had merged back into the population. It was clear that the ACCED process had not had a single lasting success in that group.

Hair visited a number of the

ACCED-run schools next where the process had been in use for the past three years. The age level here varied between ten and thirteen. He was shown records which indicated the ACCED students were far in advance of those to whom standard educational methods had been applied. The technicians assured him that, unlike their older predecessors, the present subjects were showing no undesirable emotional reactions to the process. Hair did not attempt to argue with the data given by their instruments. But he saw the children and did not like what he saw. They looked and acted, he thought, like small, worried grown-ups.

His inspection of two of the nursery schools was made against Dr. Randall's coldly bitter opposition: the appearance of a stranger among ACCED's youngest experimental subjects was unscheduled and would therefore create a disturbance; nobody had been allowed there before. But Hair was quietly insistent. It turned into a somewhat eerie experience. The students were between two and four years old and physically looked healthy enough. They were, however, remarkably quiet. They seemed, Hair thought, slower than children at that age should be, though as a bachelor he admittedly hadn't had much chance to study children that age.

Then one of the taciturn attendants conducting him through the school caught his eye and indicated a chubby three-year-old squatting in a cubicle by himself, apparently assembling a miniature television set. Hair watched in amazement until the assembly was completed, tested, and found satisfactory; whereupon the small mechanic lay down beside the instrument and went to sleep.

They had another trump card waiting for him. This was a girl, perhaps a year older, who informed Hair she understood he had been Secretary of Finance and wished to ask him some questions. The questions were extremely pertinent ones, and Hair found himself involved in a twenty-minute defense of the financial policies he had pursued during the twelve years he held the office. Then his inquisitor thanked him for his time and wandered off.

ONE could not object to ACCED as an experiment, George Hair concluded. An approach capable of producing such remarkable results was worth pursuing, within sensible limitations. The trouble with ACCED was chiefly that it was neither regarded nor handled as a limited experiment. Curtice and his assistants seemed completely indifferent to the fact that by now

the processes had been applied to well over fifty thousand cases, only a handful of which had been under their immediate supervision. The number was increasing annually; and if the second and third groups were to show delayed negative responses similar to those of the first, the damage might not become apparent for several more years but would then be enormously more significant than the development of a relatively few precocious geniuses.

Hair took his figures to Mallory, pointed out the political dangers of failure if ACCED was continued on its present scale, recommended cutting it back sharply to the level of a controlled experiment until Curtice's group was able to show that the current stages of their work would not bog down in the same type of problems as the first had done. This would release department funds for the investigation of other approaches to the educational problem which could be brought into development if it appeared eventually that ACCED had to be written off.

Mallory heard him out, then shook his head.

"I've been aware of what you've told me, George," he said. "The trouble is that neither you nor I have the background to understand fully what Curtice is up to. But the man has a fantastic

mind. There's nobody in his field to approach him today. He feels he needs the kind of wide, general experimentation he's getting through ACCED and his work with SELAM to produce the information he's after. I've seen some of the results of both, and I'm betting on him!"

He added thoughtfully, "If you're right in suspecting that the approach has an inherent weakness in it which will make it ultimately unusable, it'll show up within another few years. Time enough then to decide what to do. But until we do have proof that it isn't going to work, let's let the thing ride."

He grinned, added again, "Incidentally, I'll appreciate being kept informed on what's going on in the department. ACCED is Wirt's baby, of course, but there's no reason it should be his baby exclusively. . . ."

Which made Hair's role clear. Mallory was curious about Sebert's interest in ACCED, had wanted a dependable observer who would be associated closely enough with the project to detect any significant developments there. Hair was now in a position to do just that. But he was not to interfere with Curtice because that would defeat Mallory's purpose.

Hair accepted the situation. He could not act against Sebert's wishes unless he had Mallory's

authority behind him; and if Mallory had decided to wait until it was certain Curtice had failed, his role must remain that of an investigator. In time, the evidence would present itself. The reports he was receiving from the ACCED Building could not be considered reliable, but he was installing his own observers at key points in the project; and if that did not increase his popularity with Curtice and his colleagues, it would insure, Hair thought, that not too much of what was done escaped his attention. In addition, there was an obvious pattern to the manner in which the various project activities were stressed or underemphasized which should serve to guide him now.

THE emphasis during the next two years shifted increasingly to SELAM. After the first wave of acute psychoneurotic disturbances had subsided, Curtice's selective amnesia machines had played a limited role in the ACCED project itself; but they had been used experimentally in a variety of other ways. SELAM, when it was effective, produced a release of specific tensions by deleting related portions of the established neural circuitry and thereby modifying the overall pattern of the brain's activity. It had a record of successful applications in psychiatric work, the

relief of psychosomatic problems, some forms of senility, in the rehabilitation of criminals, and finally in animal experiments where the machines could be used to their fullest scope. The present limiting factor, according to Curtice, lay in the difficulty and the length of time required to train a sufficient number of operators up to the necessary level of understanding and skill in handling the machines. Most of SELAM's more spectacular successes had, in fact, been achieved by himself and a handful of his immediate associates.

The story was now that this problem was being overcome, that a corps of SELAM experts soon would be available to serve the public in various ways, and that the average citizen could expect a number of direct benefits for himself, including perhaps that of a virtual rejuvenation, in the foreseeable future. George Hair did not give such attention to these claims. They were, he thought, another distraction; meanwhile, ACCED could receive correspondingly less publicity. And ACCED, as a matter of fact, if it had not yet encountered a renewed serious setback, was, at least, being slowed down deliberately in order to avoid one. A number of the teen-age schools had quietly closed, the students having been transferred to country camps

where the emphasis was on sports and recreation, while accelerated education had been reduced to a few hours a day. Curtice admitted privately that certain general danger signals had been noted and that a pause in the overall program was indicated until the difficulties had been analyzed and dealt with. He did not appear unduly concerned.

It was during the third year following Hair's attempt to persuade Mallory to have ACCED cut back at once to the level of experimental research that Oliver Wingfield launched his first public attacks on the project. Wingfield was then campaigning for the governorship he was to win with startling ease a few months later, while continuing his crusade for the general elections he hoped would move him into the top spot in the Administration. The detailed nature of his charges against ACCED made it evident that he had informants among the project personnel.

It put George Hair in a difficult position. If it was a choice between supporting Wingfield and supporting Mallory, he much preferred to support Mallory. This was due less to his remaining feelings of friendship for Mallory than to the fact that Oliver Wingfield's policies had always had an aspect of angry destructiveness about them. As one

of the Big Four, he had been sufficiently held in check; his pugnaciousness and drive had made him extremely useful then. If he was allowed to supplant Mallory, however, he would be a dangerous man.

In all reason, Hair thought, they should have closed out ACCED before this. The political damage would have been insignificant if the matter was handled carefully. To do it now, under Wingfield's savage criticism, would be a much more serious matter. The government would appear to have retreated under pressure, and Wingfield's cause would be advanced. But he was not sure the step could be delayed much longer.

Then he had his first reports of six-year-old and seven-year-old psychotics in several of the nursery schools. They were unofficial reports coming from his own observers; and the observers were not entirely certain of their facts; the local school staffs had acted immediately to remove the affected children, so that the seriousness of their condition could not be ascertained. It looked bad enough; it was, in fact, what Hair had expected and, recently, had feared. But he told himself that these might be isolated cases, that there might not be many more of them. If that turned out to be true, the matter conceivably could be ignored un-



til the political climate again became more favorable to the government.

Unless, of course, Oliver Wingfield heard of it. . . .

Wingfield apparently didn't hear of it. His attacks during the next few weeks were directed primarily at the camps for ACCED's teen-age subjects. Curtice's group had volunteered no information on the incidents to Hair; and Hair did not press them for it. For a while, there was a lull in the reports of his observers.

Then the reports began to come

in again; and suddenly it was no longer a question of isolated incidents. An epidemic of insanity was erupting in the ACCED nursery schools, and Hair knew he could wait no longer.

HE had come to the ACCED Building expecting to find Curtice and his associates evasive, defensive, perhaps attempting to explain away what could no longer be explained away. That they might have the gall even now to think that giving the project another shift would avert the storm of public criticism due to burst over ACCED as soon as Wingfield's informants learned of the swiftly rising number of psychotic children in the nursery schools would never have occurred to him if he had not been warned by Eileen Randall's manner. Even so, he felt shocked and amazed.

The ACCED group might delude itself to that extent, he thought. But Wirt Sebert must be standing behind them in this. And how could Sebert show such incredibly bad judgment? Further, at so critical a time, Sebert would have conferred with Mallory before committing himself to giving Curtice further support, and Mallory must have agreed to it.

He could not believe that of Philip Mallory. Unless

George Hair stood frowning

out of the window of the ACCED Building at the river curving through the valley below. Unless, he thought, Curtice had, this time, come up with a genuine breakthrough, something indisputable and of great and exciting significance, something that could not be challenged. Because that might still do it, stifle Wingfield's declamations and dim the picture of lunatic children in the public's mind. The public forgot so easily again.

"Mr. Hair," Eileen Randall's voice purred from the doorway.

Hair turned. Her mouth curved into a condescending smile.

"Will you come with me, please? They're waiting to see you now. . . ."

A hundred feet down the hallway, she opened the door to Curtice's big office for him. As Hair stepped inside, he was barely able to suppress a start of surprise. Beside Curtice and Dr. Longdon, there was a third man in the office whose presence, for a moment, seemed completely incongruous.

"Good morning, Felix," Hair said. "I didn't expect to find you here."

Felix Austin, Chief Justice and President Mallory's right-hand man for the past five years, smiled briefly. He was tall and sparse, in his late fifties, almost exactly Hair's age.

"As a matter of fact, George," he said, "I hadn't expected to meet you today either. But I happened to be in the building, and when I heard you wanted to speak to Dr. Curtice, I thought I might sit in on the discussion. If you'd rather I'd leave, I shall do it at once, of course."

Hair shook his head. "No, you're quite welcome to stay." He took a seat, laid the briefcase he had brought with him on his knees. Eileen Randall sat down across the room from him, not far from Curtice.

Hair's fingers were trembling, though not enough to be noticed by anyone but himself, as he opened the briefcase and drew out three copies of a resume made up from the reports of his ACCED observers during the past six weeks. Austin's presence, of course, was not a coincidence; and he wasn't expected to believe that it was. He was being told that he should not count on Mallory backing him against Curtice today. He had suspected it, but the fact still dumbfounded him because he could not see Mallory's motive. He looked at Eileen Randall.

"Dr. Randall," he said, "I have here three copies of a paper I should like the group to see. Please give one each to Dr. Curtice and the Chief Justice. Perhaps you and Dr. Longdon will be willing to share the third."

Eileen Randall hesitated an instant, then stood up, came over and took the papers from him. Austin cleared his throat.

"We're to read this immediately, George?" he asked.

"Please do," Hair said.

HE watched them while they read. Austin frowned thoughtfully; Curtice seemed completely uninterested. Longdon and Eileen Randall exchanged occasional glances. Curtice finished first, waited until the others put down their copies.

He said then, "These figures are remarkably accurate, Mr. Hair. Of course, we've known you had good men working for you. The current incidence is perhaps a trifle higher than shown." He looked over at Dr. Longdon. "About eight per cent, wouldn't you say, Bill?"

"Approximately," Longdon agreed.

"We understand and appreciate your concern, Mr. Hair," Curtice went on with apparent sincerity. "But as it happens"—his forefinger tapped the resume—"this is not a matter which need give any of us concern, although you were not in a position to know it. The situation was anticipated. We have been sure almost from the beginning that immature brains would not be able to absorb the vast volume of information forced on them by

ACCED indefinitely, and that the final result would be the acute stress and confusion expressed in these figures."

"You were sure of it almost from the beginning?" Hair repeated.

"I became convinced of it personally within a few months after I was brought into the project," Curtice said.

George Hair stared at him. "Then, in Heaven's name, why—if you were certain of eventual failure—did you continue with these monstrous experiments for years?"

"Because," Curtice said patiently, "they were producing a great deal of information—information we absolutely needed to have, absolutely needed to test in practice."

"For what purpose?" Hair demanded. He looked over at Austin. "Felix, you're informed of what these people have been doing?"

Austin nodded. "Yes, I am, George." His voice and face were expressionless.

"Then supposing you. . ."

"No, let Dr. Curtice tell it, George. He can answer your questions better than I can."

It appeared, Hair thought, that Austin was deferring deliberately to Curtice, to make it clear that Curtice was now to be considered the equal of either of them.

"We needed the information," Curtice continued, as if there had been no interruption, "for a purpose it would not have been advisable to make public at the time. It would have made much of the research we were planning virtually impossible, particularly since we had no way of proving, even to ourselves, that what we wanted to do could be accomplished. Even today, less than two dozen people are fully informed of the plan.

"Our purpose, Mr. Hair, was and is the creation of a genuine superman—a man who will be physically and mentally as fully developed as his genetic structure permits. I have had this goal in mind for many years—it has been the aim of all my experiments with SELAM. When ACCED was formed, I saw the possibilities of incorporating its methods into my own projects. I went to Secretary Sebert and informed him of my plans. That was why I was made Director of the ACCED project. All ACCED's activities since that day have been designed solely to supply us with further information."

"And how," Hair asked, making no attempt to keep the incredulous distaste he felt out of his voice, "do you propose to go about creating your superman?"

Curtice said, "An adult brain,

and only an adult brain, has the structural capacity to assimilate the information supplied by the accelerated educational processes as it streams in. A child's brain is not yet structured to store more than a limited amount of information at a time. It is developing too slowly to meet our purpose.

"But, as the first experiments with ACCED showed, an adult brain, even the brain of a young adult, already has accumulated so much distorted information that the swift, orderly inflow of ACCED data again produces disastrous conflicts and disturbances. Hence the work with SELAM techniques during these years. We know now that a brain fully developed and mature, but with all memory, all residual traces of the life experiences which brought about its development removed from it, can be taught everything ACCED can teach, perhaps vastly more—it will be able to absorb and utilize the new information completely."

THERE was a long pause. Then Hair said, "And that is the story you will tell the public? That you can delete all a man's present memories, subject him to the ACCED processes, and finally emerge with a new man, an ACCED-trained superman—who happens to have been the goal of the project all along?"

"Essentially that," Curtice said.

Hair shook his head. "Dr. Curtice," he said, "I don't believe that story! Oliver Wingfield won't believe it. And, this time finally, the public won't believe it. You're just looking for another lease of time to continue your experiments."

Curtice smiled without rancor, glanced at Austin.

"Felix," he said, "perhaps you'd better talk to him, after all."

Austin cleared his throat.

"It's true enough, George," he said. "Dr. Curtice has proof that he can do exactly as he says."

Hair looked back at Curtice.

"Does that mean," he asked, "that you actually have produced such a superman?"

"No," Curtice said. He laughed, apparently with genuine amusement now. "And with very good reason! We know we can remove all memory traces from a human brain and leave that brain in undamaged condition and in extremely good working order. We have done it with subjects in their seventieth year of life as well as with subjects in their fifth year of life, and with no greater basic difficulty. We also have applied modified ACCED methods to the five-year-old subjects and found they absorbed information at the normal rate of a newly born infant

—much too slowly, as I have explained, for our purpose. but we have not applied ACCED methods of instruction to the adult memoryless subjects. We want supermen, but we want them to be supermen of our selection. That's the next and the all-important stage of the project."

"Then," George Hair said flatly, "I still do not believe you, and the public will not believe you. Your story will be put down as another bluff."

Curtice smiled faintly again.

"Will it?" he asked. "If the Director of ACCED becomes the first subject to undergo the total process?"

Hair's mouth dropped open. "You are to be . . ."

"And if," Curtice went on, "Chief Justice Felix Austin has volunteered to be the second subject?"

Hair looked in bewilderment from one to the other of them.

"Felix, is this true?"

"I fully intend to be the second subject," Austin told him seriously. "This is a big thing, George—a very big thing! The third and fourth subjects, incidentally, following Dr. Curtice and myself by approximately two years, will be President Mallory and Secretary Sebert. . . ."

GEORGE HAIR sat in his study, watching the public reaction indicator edge up above

the seventy-two mark on the positive side of the scale. Two hours before, just after the official announcement of the government's Rejuvenation Program was made, the indicator had hovered around forty. The response had been a swift and favorable one, though no more favorable than Hair had expected.

It was a little over five weeks since his meeting with Curtice and Felix Austin in the ACCED Building. Mallory's and Sebert's publicity staffs had been in full action throughout that time, operating indirectly except for an occasional, carefully vague release which no more than hinted at a momentous development to come. The planted rumors were far more direct. "Rejuvenation" was a fully established concept in the public mind days before the actual announcement; the missing details, however, were the sensational and unexpected ones—precisely the explosive touch required to swing the skeptical and merely curious over to instant support of the official program.

Curtice's goal of the ACCED-trained mental superman was being played down at present; it was less tangible, of far less direct interest, than the observable response of an aging body to the complete SELAM process. Hair had seen the seventy-year-old subjects of whom Curtice had

told him. They were old men still, but old men from whom the physical and emotional tensions of a lifetime had been drained together with the memory traces of a lifetime. The relaxed, sleeping bodies had fleshed out again, become strong and smooth-skinned, presenting the appearance of young maturity. They gave credibility to Curtice's claim, based on comparable work with animals, that SELAM now offered humanity a life extension of at least sixty healthy years.

The public had seen those same rejuvenated bodies in the tridi screens today. It had listened while Curtice explained the developments in his SELAM machines which had brought about the miracle, and watched him walk smiling into the laboratory where he was to become the first human being to whom the combined SELAM and ACCED techniques would be fully applied.

Those were compelling arguments. The superman theme had been barely introduced but would grow in significance as the implications of Felix Austin following Curtice within a few months, and Mallory and Sebert following Austin within two years, were considered. What the leaders wanted for themselves, the public wanted. Unofficially, the word already was out that when the President and Secretary received the Rejuvenation

treatment, a hundred deserving citizens would receive it with them, that SELAM and ACCED would become available to all whose personal records qualified them for the processes as quickly as Dr. Curtice's intricate machines could be duplicated and technicians trained in their use.

There was no question, George Hair thought, that the bait was being swallowed. And the thought appalled him. On the one occasion he'd spoken with Philip Mallory during the past weeks, he had brought up the subject of loss of individuality, of personality, by the SELAM process and in the subsequent period when, within a year and a half, a new mentality would be created by machines in the emptied, receptive brain, perhaps a vastly more efficient mentality but nevertheless

And Mallory had looked at him shrewdly, and laughed.

"The old Phil will be there again, George—don't worry!" he'd said. "I'm not suddenly rushing into this thing, you know. We can't talk about everything Dick Curtice has done with SELAM, but I've seen enough of his half-way jobs to go ahead." He gave Hair a conspiratorial dig with his elbow. "If Curtice weren't as far along as he is, Wingfield would have had our skins before summer! That's part of it. The other part of it is

that I'm sixty-four and Sebert's sixty-six. You're fifty-eight yourself. We can all use some freshening up if we're to stay on top of the pile. . . ."

That had been the lure for Mallory. If it hadn't been for the pressures being built up by Wingfield, Hair thought, Mallory need have felt no concern about remaining on top for another twenty years. But he'd seen the developing threat and prepared quietly to more than match it with a bold, overwhelming move of his own. A new Big Four was in the making, a Big Four of supermen, with Curtice in Hair's position as thinker and theorist, Felix Austin in Wingfield's, while Mallory and Sebert remained the central two, the leaders. Hair had no illusions about his own prospects in the new era. As Administrator of Education, he had remained a popular, almost legendary figure; but it was clear now that it had been a popularity skillfully maintained by Mallory's publicity machine to give ACCED additional respectability in the transition period ahead. Thereafter, the legend would be allowed to fade away, and he with it.

He didn't, Hair decided, really want it otherwise. He did not share Mallory's will to stay on top at all costs . . . definitely not at the cost of allowing his personality to be dissolved in

Curtice's Rejuvenation process, even if the opportunity were offered him, although he was already quite certain it would not be offered. The new ruling group would have no further need of him.

He could resign now; but it would be awkward and change nothing. The psychotic children in ACCED's nursery schools were no longer an issue. They had been mentioned, casually, as a detail of the experiments, now concluded, which had been required to produce Rejuvenation, with the additional note that their rehabilitation would be undertaken promptly. The statement had aroused few comments . . . He might as well, George Hair told himself finally, watch the thing through to the end.

DURING the next three months, he found himself involved frequently in the publicity connected with the Rejuvenation program, although he refused interviews and maintained the role of a detached spectator. Oliver Wingfield, stunned into silence no more than a few days, shifted his attack from ACCED to the new government program, lashed out savagely at Hair from time to time as one of the planners of what he described as an attempt to foist the rule of robot minds on normal men. Hair, not too sure he wasn't in some agree-

ment with Wingfield on the latter point, held his peace; but Mal-lory's publicity experts happily took up the battle.

Despite Wingfield's best efforts, the Rejuvenation program retained its high level of popularity. The successful conclusion of the SELAM phase of the process on Richard Curtice was announced by Dr. Langdon. For the next sixty days, Curtice would be kept asleep to permit physical regeneration to be well advanced before ACCED was introduced by degrees to the case. Tridi strips taken at ten-day intervals showed the gradual transformation of a middle-aged scientist in moderately good condition to a firm-muscled athlete apparently in his early twenties. Attention began to shift to Felix Austin as the next to take the step, six weeks after Curtice's ACCED training had begun; and the continuing denunciations by Wingfield and his followers acquired a note of raging hysteria.

Three months and ten days after Curtice had submitted himself to his SELAM machines, George Hair came back to the ACCED Building, now the center of the new Rejuvenation complex. He was not at all sure why he should be there, but Longdon had called him that morning, told him there had been a very important development and asked him to come as soon as he pos-

sibly could. There had been a degree of urgency in the man's voice which had made it difficult to refuse. Hair was conducted to a part of the building he had not seen before and into a room where Longdon was waiting for him.

Longdon's appearance underlined the urgency Hair had sensed in his voice when he called. His eyes were anxious; his face looked drawn and tired. He said, "Mr. Hair, thank you very much for coming so promptly! Dr. Randall and I are faced with a very serious problem here which I could not discuss on the telephone. It's possible that you will be able—and willing—to help us. Let me show you what the trouble is."

He opened a door to another room, motioned to Hair to enter, and followed him inside, leaving the door open.

Hair recognized this room immediately. He had seen it several times in the tridi screen during demonstrations of the changes being brought about in Curtice's physical condition by SELAM. As he had been then, Curtice was lying now on a sunken bed in a twelve by twelve foot depression in the floor, his tanned, muscular body clothed only in white trunks. His face was turned toward the door by which they had entered and his eyes were half opened. Then, as they came to-

ward him, his right hand lifted, made a slow, waving motion through the air, dropped to his side again.

"Our subject is exceptionally responsive today!" Dr. Longdon commented, an odd note of savage irony in his voice.

Hair looked quickly at him, frowning, asked, "What is the problem you wanted to discuss?"

LONGDON nodded at the figure sprawled across the sunken bed.

"There is the problem!" he said. "Mr. Hair, as you know, our calculations show that an adult brain, freed completely by SELAM techniques of the clutter of memories it has stored away, can absorb the entire volume of ACCED information within a period of less than two years. At the end of that time, in other words, we again would have a functioning adult, and one functioning in a far more integrated manner, far more efficiently, than is possible to the normally educated human being, and on the basis now of a vastly greater fund of accurate information than a normal human mind can acquire in a lifetime. . . ."

"I know, of course that that was your goal," Hair said. "Apparently, something has gone wrong with it."

"Very decidedly!" Longdon said. "This is the forty-third day

since we began to use ACCED training methods on Curtice. In child subjects—children whose memories were completely erased by SELAM at the age of five—forty-three days of modified ACCED produced a vocabulary equivalent to that of an average two-year-old. Curtice, in the same length of time, has acquired no vocabulary at all. Spoken words have no more meaning to him today than when we started."

A door had opened and closed quietly behind Hair while Longdon was speaking. He guessed that Eileen Randall had come into the room but did not look around. He was increasingly puzzled by Longdon's attitude. Curtice's failure to develop speech might be a very serious problem—might, in fact, be threatening the entire Rejuvenation program. But he did not see what it had to do with him, or how they expected him to help them.

He asked, "Have you discovered what the difficulty is?"

"Yes," Longdon said, "we know now what the difficulty is." He hesitated, scowling absently down at Curtice for a few seconds, went on. "A child, Mr. Hair, a young child, wants to learn. Not long after birth, it enters a phase where learning might appear to be almost its primary motivation. Later in life, it may retain the drive to learn or it may lose it. It has been as-

sumed that this depended on whether its life experiences were of a nature to encourage the learning urge, or to suppress and eventually to stifle it.

"Now it appears that this is only partly true. Later life experiences may indeed foster and even create a learning urge of their own. But the natural drive, the innate drive, apparently is present only for a comparatively short time in childhood. It is not, in itself, a permanent motivation in man.

"Dr. Curtice's biological age is nearly fifty years. Before SELAM wiped the effects of his life experiences from him, he was, of course, a man intensely interested in learning, intensely curious. But his curiosity and interest were based on the experiences he has lost, and were lost with them. And he is decades past the age where the innate drive to learn could still motivate him.

"We can teach him almost nothing because he is inherently uninterested in learning anything. We have used every conceivable method to stimulate interest and curiosity in him. Intense pleasure or severe pain will produce corresponding reactions, but when the sensations end, he appears to forget them quickly again.

"There is, however, a barely detachable learning curve, which can be projected. In twenty

years, by the consistent use of brutally drastic methods, we should be able to train Dr. Curtrice's brain to the point where he could comprehend very simple instructions. By that time, of course, the training process itself would have produced such severe physical and emotional stresses that the rejuvenating effect of SELAM would have been lost, and he would be showing—at the very least—his actual physical age."

Dr. Longdon shrugged, spread his hands, concluded, "So at best, Mr. Hair, we might wind up eventually with a very stupid, very dull old man of seventy.

EILEEN RANDALL's voice said harshly behind Hair, "Mr. Hair, it is not nearly as hopeless as that! Not nearly!"

She went on vehemently, as he turned to look at her. "We simply need time! Time to understand what really has happened here . . . to decide what must be done about it. If Richard weren't helpless, he would tell us what to do! He would never—" Her voice broke suddenly.

Longdon said patiently, giving Hair an apologetic glance, "Eileen, you know we've gone endlessly over all calculations, tried everything! We . . ."

"We have not!" Eileen Randall began to weep.

George Hair looked in some-

thing like irritated amazement from one to the other of them. He said carefully, "This is, of course, a very serious matter, but I am hardly qualified to assist you in it. It's no secret to you that my connection with the program has been and is a purely figurative one. The only suggestion I can make is that President Mallory should be informed immediately of the problems you've encountered here."

Longdon said tonelessly, "President Mallory is aware of the problem, Mr. Hair."

"What?" Hair said sharply. "When was he told?"

"Over a month ago. As soon as it became evident that Dr. Curtrice was not responding normally to the ACCED approach for de-memorized subjects." Longdon cleared his throat. "President Mallory's instructions were to maintain absolute secrecy while we looked for a solution. Now, however . . ." He shrugged.

Over a month ago . . . Hair's mind seemed to check for an instant at the words; then his thoughts were racing as Longdon went on. For more than a month after Mallory and Sebert had realized that the Rejuvenation program might end in humiliating public failure before it had well begun, the build-up had continued, Oliver Wingfield and his adherent were being scientifically needled into a crescendo of

baffled rage, and Felix Austin—yes, only five days from now, Chief Justice Austin was scheduled to undergo the SELAM techniques which evidently had destroyed Curtice! Hair felt a sudden chill prickling the back of his neck. . . .

"Mr. Hair, you *must* help us!" Eileen Randall was staring desperately at him, tears streaming down her face.

"There's no way I could help you, Dr. Randall."

"But you can—you must! They'll murder Richard if you don't! They've said so! You—your influence with President Mallory—his old friend . . ." The words drowned in a choked wailing.

HAIR felt his breath shorten. Curtice had to die, of course—die plausibly and conveniently so that his condition need never be revealed. But Mallory and Seibert weren't stupid enough to think that Curtice's death alone would be sufficient.

"It isn't necessary!" Eileen Randall was babbling shrilly again. "Even—even if the program has to end, we could take him away quietly, take care of him somewhere. They could *say* he was dead—no one would ever know! We . . ." She clapped her hands to her face, turned and ran from the room, making muffled, squalling sounds.

"I should see she's taken care of, Mr. Hair," Longdon said shakily. "If you'll excuse me a minute . . ." He started for the door.

"Dr. Longdon!"

Longdon stopped, looked back. "Yes?"

"Who suggested to you that I should use my influence with President Mallory on Curtice's behalf?"

Longdon's eyes flickered. "Chief Justice Austin."

"I see," Hair said. "When did he suggest it?"

"This morning," Longdon told him, with a brief, frightened grimace. "He was here shortly before I called you. I could not avoid acknowledging that Dr. Curtice's case was hopeless. The Chief Justice advised us then that only your personal appeal to President Mallory could save Curtice's life, that we should attempt to get in touch with you immediately . . ."

He hurried out of the room. Hair stood staring after him a moment, then turned, glanced at the mindless thing on the sunken bed, went quickly over to the other door through which he and Longdon had entered. There had been, he recalled, a telephone in the outer room.

He dialed the number of his office, waited, listening to the soft purr on the line. Then, suddenly, the line went dead.

That was that, Hair told himself. He replaced the receiver, went over to the window and looked out at the newly erected buildings of the Rejuvenation complex. His thoughts seemed to be moving sluggishly. Perhaps it was fear; but perhaps it simply had been too long a time since he had been involved in an operation of this kind. After the Take-over, it no longer had seemed necessary; and he had a feeling that what was going on now was somehow unreal.

But it was real enough. Mallory, the man of action, the practical man who intended to remain on top, hadn't forgotten the lessons of the past. He might have been betting on Curtice's genius, but he had been preparing for years to hedge on the bet if necessary. Perhaps he'd never expected ACCED or the Rejuvenation program to come to anything. Either way, he could turn the projects to his advantage in the end.

Hair's gaze shifted for a moment to the sky above the buildings. It would come from there in all likelihood, and in an instant of ravening fury the Rejuvenation complex would be obliterated. The buildings, the personnel, the machines, the records—anything that would have left the slightest possibility of beginning the program again . . . and George Hair, the thinker, the

theorist, the living legend, whom Mallory had not forgiven for failing to throw in his influence openly against Wingfield in their first struggle for control.

Wingfield would be blamed for it, and they could make it stick. Wingfield was finished. . . .

Hair turned at a sound behind him. Longdon had come into the room.

"Mr. Hair," he said, grinning apologetically, "you must forgive Eileen! She has always been in love with Curtice, of course. If she is only allowed to take care of him, she will be satisfied. I hope you can persuade President Mallory to leave her that much. . . ."

Hair looked at Longdon's anxious eyes. Longdon hadn't grasped everything, of course, but he had grasped enough to be aware that not only Curtice's life was in danger.

For an instant, Hair wondered how Longdon would react if he were told that communications from the building to the world outside already were being intercepted, and that therefore neither of them—nor anyone else within half a mile of where they stood—could have more than a very few minutes still to live.

But although he had never liked Longdon in the least, that seemed a pointless cruelty now.

"I'll see what I can do, Dr. Longdon," he agreed.

THE END



THE SHEETED DEAD

By ROBERT ROHRER

Illustrated by FINLAY

A tale of horror . . . of an act of horror
that could be avenged only by an act of
greater horror . . . a story not for weaklings.

Man fought between the planets, and when his battles were done great clouds of radioactive dust blew through the galaxy. Badly scarred, Earth, the Mother Planet, could live on—if she could escape the dust.

So Man on Earth left the universe; he withdrew with a great flourish of electric arcs and fusing atoms. Man on Earth left his warriors to languish and die on Mars, on Jupiter, and in the thousands of space stations that



dotted the void. Some of the Earthlings called Man on Earth a coward; others called him a genius. But in any case, Man left.

In the chaos of whirling electrons and atoms that was Earth-Man's Withdrawal, a tiny virus cell mutated from other virus cells that had been floating in the atmosphere of Earth. This cell was different from its forebears. For many years it was tossed about in the magnetic field above Earth. There the cell reproduced itself billions of times.

Finally a chance electromagnetic wave sloughed the great mass of virus cells from the roof of energy Man had thrown about his world. The cells were scattered from each other and began to drift down toward the gray, silent sphere below.

PHIPPS pushed the lid of his coffin open and swung his feet over one leaden side to the polished steel floor of the mausoleum. His dry, shrivelled eyes moved painfully about the hall of the vault. The roof of the hall was low, and tier upon tier of iron coffins lay on either side of Phipps's resting place. The blue glow of the dust that had risen from the bodies and seeped from the caskets suffused the entire mausoleum, and the coffins were like luminous hyphens from one end of the vault to the other.

These were the War Dead.

Phipps was one of the War Dead. He could vaguely remember dying of radiation sickness years before. It had not been a pleasant death, so even his half-rotted mind retained the memory of it.

He could feel the glands of his body beginning to secrete the fluid they had been unable to produce for so long. He slipped down from the edge of the coffin. The dried skin of his legs and arms and chest cracked and squealed as he walked. He shambled down the rows of hyphens to the high, cadmium-coated door of the mausoleum.

The door had been forced, probably by scavengers. There had been scavengers before his death, because even then the people had been buried with their wallets in their coats and their jewelry on because of the radiation. And the scavengers had forced their ways into tombs and had plucked the bodies of the wealthy, and the scavengers had died of radiation sickness but they had died rich.

Phipps had been a soldier. He had not had to fight; the missiles had done the fighting for him, and most of the war had been carried on in space. But still, millions had died on Earth. Phipps had died watching the sun go down behind a half-destroyed skyscraper.

Suddenly Phipps realized that he had to see the sun again. He

limped through the entrance of the vault and began to struggle up the tunnel that led to the surface. Fluid was once again oozing into his joints, and his knees moved more freely.

Perspiration was beginning to sting through the cracked pores of his forehead when he reached the cave entrance. With dull eagerness he walked into the open and raised his face to meet the light.

There was no light. The dull glow from a faraway city rippled over the terrain, but there was no light in the sky. No sun, no moon, no stars.

Phipps's mouth dropped open in anguished disbelief. There was only darkness above, a solid black arch that spread from horizon to horizon. For minutes Phipps stared at the abyss. Then he slowly clenched his hands and shook the fists before his face. He had heard the cowards' talk before his death, also, but he had never believed. . . .

He whirled around and limped furiously back into the cave. Little scales of dried skin flaked from his clenched hands as he walked. He knew what had to be done, now.

He re-entered the mausoleum and opened one of the coffins.

BRAKE of the Urban Guard took a last look at the sunless, starless sky and entered the

small Harmonization Compartment of Captain Holloway's house. His surgically built-in Conditioner was enough to adjust his mind waves to the electromagnetic currents in the streets outside, but a house was a different matter; the walls of any enclosure deflected currents acoustically, building up a unique system of electrical vibrations more powerful than the vagrant streams in the open air. Unharmonized exposure to such vibrations caused a smashing of the order of a person's brain waves. The upshot was always mindless madness.

Brake braced himself for the ripple of nausea that usually passed through him during Harmonization; when the feeling had gone, he threw the necessary lever and walked into Holloway's front hall. The hall was doorless and airtight except for the two suction ducts in the ceiling. Holloway was a careful man.

Brake inserted his personal key into the phase transposer in the north wall, and—he was standing in Holloway's conference room on the fourth floor of the building. He stiffened, saluted, and said "Sir?" to Holloway.

Holloway was sitting behind a broad, aluminum desk; his thick, greasy hair seemed blacker against the translucent memorandum screen that sprawled

whitely behind him. He was tapping with his stubby fingers on the surface of the desk. It seemed that he should be clutching a cigar in one hand, but he was not.

"At ease, Lieutenant," said Holloway. "How many of your Ghouls are available?"

Brake calculated. "Seven," he said finally.

Holloway nodded and indicated a squat, gray box at one side of his desk. "Use my communicator to freeze them," he said. Brake complied. When he had finished talking to Waters at headquarters, he resumed his place before Holloway. He waited silently, with calm impatience, as Holloway tapped on the desktop introspectively. Finally the chief coordinator of City Defense looked up.

"Two peasants were found dead on the outskirts of Rural 6," he said. "Old man and his wife. They'd been torn apart."

Brake nodded. He wondered what a rural murder had to do with Urban Defense, but he did not say so.

"You're wondering what this has to do with Urban Defense," said Holloway. "Look at this."

HE threw a pair of dogtags strung on a chain to Brake. The tags were covered with mould; Holloway had wiped the face of one of them clean. The in-

scription read, "Ewin, Charles P./A365B47L/Spaceforce/P."

"It's a standard Armed Forces dogtag," said Brake.

"Yes, it is," said Holloway. "Another body was found near these peasants' farmhouse. It had those tags around its neck. The old man had broken a milk jar over its head, but that isn't what killed it." Holloway sniffed. "My medical men say it's been dead for twenty years. It was pretty badly decomposed when the Rural Guardsmen found it. They sent it to me. My guess is that it's one of the War Dead."

Brake looked dully at Holloway. "Do you mean that scavengers killed those peasants and left a body . . . ?"

"No," said Holloway. "The corpse had blood under its fingernails. Blood from the old man."

Brake knew that Holloway was pausing to let the implications sink in, but Brake couldn't make his mind comprehend what had just been said. He heard himself say mechanically, "Have the Geiger Screens been thrown up around the City?"

Holloway said, "Of course. And around Suburbia. No signals yet. I have my examiners turning that corpse inside out to see what activated it." He produced an apple from under his desk and began to munch. "Doc Phillips says this Ewin's reactivation could be an isolated

phenomenon caused by the energy currents generated by the Withdrawal Complex in mid-City. He also says it could be a generalized phenomenon. He doesn't know. That's what you're to find out.

"The Tomb closest to those peasants' farmhouse is number 87. All soldiers, some interplanetary, some intraplanetary. Highly radioactive vault. Get your seven Ghouls out there and send them down for a look. When you've viewed the tapes, come back here and bring them with you. Maybe the Meds'll have a verdict by then."

"Yes, sir."

"Take some men with you, but for God's sake don't let this get out. We're having enough trouble with dementia already, without scaring more of it up. Dismissed."

Brake saluted smartly and walked to the phase transposer.

The metal Ghouls ground into the outer tunnel of Tomb 87. They were called Ghouls because they had been used during the War to transport people who had died of radiation sickness to the Tombs. Brake watched the machines wobble into the cave. He despised their spherical control units, their shovel-like hands. He felt repulsed whenever he touched them or had to go near them.

The War. He glanced nervously at his men, as though he were

afraid they could read his thoughts. He thought often of the War, of the soldiers who had been left to die on the other planets and in the space battleships. He had been a small boy, then. He remembered his father's throwing the Telenews sheet to the floor and stalking from the dining room when the announcement came that Earth was to leave the galaxy without sending out rescue parties. Some scientists had said that the radioactive dust would sweep into Earth if the government waited another week. Others had said another month. Others had said another ten years.

THE last of the Ghouls rolled into the tunnel. All seven were equipped with television cameras and tape especially treated to withstand the ravages of the constant electromagnetic currents. They would tape what was inside and would return. The radioactivity was too dangerously high for a man to go inside, and, moreover, there was no way to harmonize with the tomb's currents.

Many people had died of radiation sickness on Earth. And then there had been plagues in disaster areas. All told, nine tenths of the population of the Western world had been destroyed. No word had come from Eurasia since the end of the War.

What was left of technology in the West controlled the world. The West could have sent out rescue parties, but it chose to be sure that the world would not be inundated by the dust from space. Half of the survivors of the nuclear conflict had protested this decision violently; the outcome had been a civil war, which had culminated in the division of North America into city-governments controlled by a police force called the Guard. The Withdrawal Complex that sealed Earth from the universe with a shield of electromagnetism was located in Brake's City.

"More light," Brake barked to the men standing around a flood-light on a Hopper. The men stepped up the intensity of the lamp. Still the darkness seemed to crouch around Brake, too closely. He was always chilled by the black sky, even when he was in the brightly lit City. People were going mad because of that black sky, breaking down in the streets and killing themselves or others. The rate of deaths of this sort went up every year.

Brake shivered involuntarily. The ghostly outline of a Ghoul glimmered into view at the mouth of the tunnel.

"Tape viewers!" shouted Brake, to drive away the cold.

* * *

Phipps had been an infantry sergeant. His vocal cords had

rotted to a whisper, but he still knew how to make men jump to obey his commands. After all the dead soldiers had filed out of the mausoleum and were standing shoulder to shoulder under the artificial night sky, Phipps had told them what must have happened, what they themselves already half-realized. He had felt the hate radiate from their cold bodies, the hate for all the fat, comfortable cowards who lolled in easy chairs while the bones of soldiers who could have been rescued rotted on the plains of Mars and disintegrated in the reaches of space.

And Phipps knew then, when he felt the hate, that he could lead these men. He did not know why he was able to walk and think when he should still be lying in iron silence on the smooth bottom of his casket; he did not care. He told his men what he wanted them to do, and they obeyed him.

First, because he remembered the Geiger Screens that had been used in the cities during the War, he had his men bathe in a lake that stood several hundred yards from the cavern.

Then he divided the dead men into groups of five, and deployed these groups across the countryside, and gave the order to march on the city whose light shimmered down on the empty tomb.

When his group came upon

the man and his wife in the farmyard, Phipps gave the order to kill them. He watched while his men piled onto the couple, the fat old man and the fat old woman, and tore at the two until their screams were hollow things in the wind. He scowled as he looked at the makeshift house and the empty wastes around it. Man had retreated into his cities. He no longer dared to venture out into the darkness. He had betrayed the faith. It was time for a braver animal to seize the throne.

And so Phipps led the ranks of War Dead into Suburbia.

* * *

"Empty?" said Holloway.

"Yes, sir," said Brake. "The Ghouls couldn't find a single corpse."

Holloway nodded, as though he had known all along what the answer would be. "This is Doc Phillips," he said, motioning to a small, gray-mustached man who stood to Brake's left. "He's pretty sure he's found out what made that 20-year-old corpse tick."

Brake looked at Doc Phillips, who blinked. "It is some sort of virus," said Doc Phillips. "Our atomic microscopes hunted it out of a sample of the body fluid. The virus cells are dead now, at least the ones we found. My guess is that the milk killed them."

Brake said, "You mean the virus brought the man back to life?"

Doc Phillips shrugged. "I don't know whether you could call it life," he said. "The heart muscles are too decomposed to have functioned. No blood in the veins. But the thing did have automation—there was plenty of body fluid, and the muscles of the limbs had been restored somewhat. And evidently it was able to reason, in however limited a way. I'd say it was dead, but animate."

Holloway interposed from behind his aluminum desk, "Where did the virus come from?"

"Damned if I know," said Doc Phillips. "It could be a mutation caused by radiation, or something a soldier brought back from Jupiter—anything. But I've never seen anything like it before. Since the dead in our own graveyards haven't waked up so far, I'd guess that reanimation depends on the interaction of the virus and a high amount of radioactivity. That's *only* a guess, though."

"Do you think this—reanimation could be widespread?" asked Holloway.

"That's possible."

Holloway tilted his head sideways and looked down at the desktop. Brake knew the motion. His chest muscles tightened. He said, "Why did you ask that, sir?"

"The communications screen for City 34 went blank an hour

ago," said Holloway. "We have not been able to renew contact."

The room was silent. Quiet city sounds murmured between the bars of an open window.

"I want you to take a Hopper to 34, Lieutenant Brake," Holloway continued. "No men, just you. I don't think men will do any good, now, but I want to know what's happened up there."

"Yes, sir," said Brake.

A distant scream drifted through the window.

"What . . .," Brake began, but Holloway silenced him with a furious look.

Another scream followed the first one, and then another, until many screams jumbled through the window together, carried by the wind from some far place.

"What is that?" Brake said.

"It's Suburbia," said Holloway. His hand manipulated a control on the gray box, and he said into the face of the box, "Get me Suburban Guard Headquarters. . . . Brake, get to the Hopper. I'll manage the Urban area from here. Hello, have you got them yet? . . . Well, try again. . . ."

PHIPPS's mould-coated ceremonies trembled loosely against his body as he strangled the uniformed Suburban Guardsman. Finally blood welled up in the man's eyes, and Phipps felt the soldier's neck vertebrae crumple.

He let the body fall heavily to the street.

All around him men and women ran or lay dying. Suburbia's uniform plastic dwellings were being systematically broken into and emptied and gutted by Phipps's men. Flames curled high against the black sky. *Soon there will be stars there*, thought Phipps. *Soon. . . .*

A Suburban Guardsman brought his rifle butt down on Phipps's shoulder from behind. Phipps turned and grasped the Guardsman's rifle around the trigger guard. The Guardsman's face was yellow and wet with fear. Phipps easily pulled the gun from the man's sweaty hands. Then he beat the soldier's brains out with two mighty blows.

The entire *coup* took less than fifteen minutes. As Phipps had expected, the Suburban Guard had been organized more for the shooting of stray animals who crept into the City for warmth than for the repulsing of an army. When it was all over, he assembled his men in the street and spoke to them in his hoarse voice.

"Somewhere on this continent," he said, "is a machine that has been used to blot our planet from the universe. This machine may be large, it may be small; it may be a huge computer, it may be a tiny tube; it may be hidden

in a field, or in a tree, or under a lake, or in a man's brain. But we must find it. We must search this land until we have found the machine and reduced it to useless rubble, so that Earth may once again be warmed by the sun's light."

The dead men said nothing, but Phipps could feel their agreement. "We will search first," he whispered fiercely, "there!" And he pointed to the iron, cube-like buildings of the City.

The hundreds of death's-heads turned to the light that poured from the City. The purple-gray, antiseptically preserved bodies swayed toward the brilliance. Those men who still had lips drew them back over their gums, and those who did not clicked their teeth together in fury. The clicking rose in volume until it echoed from the houses of Suburbia and rose in a fountain of sound that arched through the air and splashed into the Urban streets.

"Forward!" rasped Phipps.

SILENCE. Brake looked down through the transparent belly of his hovering Hopper into the abyss of darkness that should have been flooded with the light of City 34. He slid the oblong port open and let the cool air blow up across his face. He leaned out through the port and turned an ear to the blackness. No sound.

He pulled himself back into the ship and closed the port. Perhaps he should drop a flare, but doing that would make no difference; he knew that all the people in City 34 were dead—even the ones who had done the killing.

Short tics convulsed the nerves at the base of his neck. His Conditioner was giving him twinges, as it often did when he was under strain. Dead—dead. He sucked in a breath and slapped the controls of the Hopper into position. The small craft began to sweep toward Brake's City along the electromagnetic currents that swirled through the atmosphere. With brilliant, scherzo-like jumps the Hopper skipped from wave to wave, sucking power into its engine here, filtering excess energy there.

Why were they doing this? Why, instead of rejoicing in their newly regained life, did they stalk into the cities and kill the survivors of the War? Could it be—could it be because of the Withdrawal? Were they after revenge for their deserted comrades?

Yes! Revenge! It was almost as though the dead men were stopping the Game and calling down the living for cheating; as though they were saying, "Ah—ah—back up. You had your chance to play things straight, and you blew it. You can't run away from what you've done, now."

Brake clenched his teeth. Perhaps his City had been attacked by now. Perhaps the dead soldiers were marching into the cube-shaped buildings and smashing the floodlights and the neon lights and the electrical generators, forcing the City to open its mouth and swallow itself up in darkness.

Darkness. Brake looked away from the glowing controls of his Hopper and widened his eyes uselessly at the invisible ceiling of his ship. He shivered because of the great hollowness in his chest. Darkness.

Then the Hopper began to drop in a sickening arch, and Brake knew he was back over the City. He switched the steering controls to a special band sensitized to the shape of the Central Defense Building as it was outlined against the electromagnetic flow in the City.

He leaned over and looked down through the belly. There were lights below. *Thank you, God*, he thought.

The Hopper set down in front of Holloway's building. Brake pressed a button and the collapsible plastic hood of the small craft folded back. He looked up and let the light sweep down over his face and press against his eyes.

Then he looked down and saw the bodies. Some of the bodies were lying in the street, but most of them were crumpled at the

bases of buildings, hunched into the angles between the sidewalks and the walls, their arms draped over their faces as though to hide the reflection of some awful knowledge.

FOR a moment, Brake stood in the cockpit of the Hopper and looked at the silent corpses. Then he snapped his eyes to the door of Holloway's building.

The door had been smashed in. Its massive iron body lay on the tiles of the Harmonization Compartment inside, across the splinters of the wooden inner door, which it had smashed in its fall. Brake jumped from the Hopper and ran headlong to the doorway; he pushed the fallen outer door over the tiles into the street; then he slid the two vinyl emergency panels into place and set the harmonization generators in motion.

Without bothering to cut the generators he slapped the inner panel open and ran to the phase transposer. The flat metal of the transposer was covered with long scratches. Brake inserted his key and

—he was standing in the chaos of Holloway's conference room on the fourth floor. The furniture of the room—the aluminum chairs, the small tables—had been twisted and broken and strewn over the floor.

Brake shouted, "Captain Hol-

loway?" The yell *pinged* hollowly from the walls. There was no answer. Brake jumped over heaped chairs and tables to Holloway's broad desk.

Holloway was lying behind the desk. Holloway's clothes had been ripped from his body, and so had his skin. His hair had been pulled out in hunks, and it lay scattered about him in great, bloody tufts. His eyes looked at Brake sadly.

Brake gripped the side of Holloway's desk and closed his eyes tightly. When he opened them again, they were looking at the window that had been smashed open on the other side of the room. Somehow the dead men had climbed up the wall outside.

He turned back to Holloway's desk. The control lever for Holloway's memorandum screen was coated with coagulating blood. Brake reached out and pushed the lever to "play".

Holloway's face sprang up on the screen that covered the wall behind the desk. It was Holloway's face as Brake now looked at it on the floor, slashed and bruised, except that on the screen it spoke to Brake.

"They have—the directions—for finding the—building of the Complex," said the face. "Guard—Complex. All costs don't let—them get—to it. Order. That is an order. Brake—or whoever sees thi—"

A hand reached onto the screen and jerked Holloway's face from the range of the camera. There was a short scream. Then another face appeared on the screen. It was a sagging, spongy face; its crown was bald, its eyes were feverish, and its teeth were bared in a terrible grin.

"Aahhhhhhgghahh," said the thing on the wall. A thread of saliva dropped from its lower lip, and its hand reached out, and the screen went blank.

So that was what they were after—the Complex. They must have tortured the information out of Holloway, or, more likely, found a City map somewhere in the building. They were going to destroy the Complex and thrust the world back into a contaminated universe. The last survivors of the War would be killed by fallout from space, if not by the dead soldiers.

Brake's face was a mask. He stumbled numbly to the phase transposer, turned the key, and—ran into the street to his Hopper. He leaned into the cockpit and snapped his Laser rifle from its holder. He had been ordered to protect the Complex, and he would.

HE began to walk away from Holloway's building. The dead men were probably regrouping somewhere, preparing for the final onslaught. God, that face on

the screen! And Holloway—all that blood. His cold mind began to drift through a circle: Holloway, the blood, the face, Holloway, the blood, the face, Holloway, the. . . .

He tripped over a corpse and almost fell. He gasped, and a spasm went through his chest and legs as he stamped one foot wildly to the pavement to keep from falling. He straightened, threw his shoulders back, and marched down the street, looking from sidewalk to sidewalk, from window to window, for signs of his enemies.

He was halfway to the Complex when the lights began to go out. They had gotten to the electrical generators in the heart of the City. Brake began to walk more quickly. Behind him, the night closed in.

Only one of the floodlights over the doorway of the building that housed the Complex still burned. The door of the building had not been molested yet. Brake turned from the door and backed warily up the stairs to the road porch. The floodlight made a wide semicircle on the street immediately before the foot of the stairs. Brake could see his breath. Beyond the broken disc of light was total darkness. Most of the electrical generators must have been stopped.

Brake looked steadily at the white-flooded steps and pave-

ment. He could feel the darkness behind him, above him, and before him; he was afraid to look at it. Afraid. Afraid.

Afraid? Of what? Of pain, of dead men who walked and killed?—no. He was afraid of the darkness. Afraid of the sunless atmosphere that brushed his cheeks and clung to his eyes. He was afraid of pain in the dark, and death in the dark, and dead men who walked and killed in the dark.

He tried to think of other things to smother his fear: a hot dinner, a good book, a girl's face; but these did not help him because he could picture them only under a dark sky, and his thoughts crashed into an old line from Shakespeare,

*In the most high and palmy
state of Rome,
A little ere the mightiest Julius
fell,
The graves stood tenantless, and
the sheeted dead
Did squeak and gibber in the
Roman streets;
As stars with trains of fire, and
dews of blood,
Disasters in the sun. . . .*

He hadn't seen the sun since he was six years old. The sun, the sun, where was the sun? Gone behind a cloud? Yes, behind a cloud of fear and despair.

He wryed his face at the cliché. His tingling vitals mocked his mock disgust, and back his

thoughts went to Holloway, the blood, the face, Holloway. . . .

No. No, this was not the way to wait. This was not the way to wait for them at all. He ought to check his gun (them, them, them) to be sure it would fire fire fire, to clean the dust from from from the precision mechanism, from the needle nose, from the barrel, from the sight, from the stock from the trigger from the WHAT!

He stood and his heart was breaking from between his ribs with tremendous thuds that crashed in his ears. A sound? A foot scuffing on the street? He gripped the gun tightly, desperately, it was too small, it could not protect him, the cold night wind was blowing over it and so would they, they. . . .

No. They were not there, yet. Of course not. They were not there, just beyond the rim of the solitary floodlight, waiting for him to turn his back. Their eyes did not glitter in the light that glowed with less and less intensity from the pavement. No.

He took a deep breath. He lowered the gun. He reached into his pocket for a cigarette and a book of matches.

He had to turn around to shield the match from the breeze. He struck the match, and the sound of the sulphur tip raking the granulated matchbook was like the sound of a shoe scuffing.

AS he shook the flame out, there was a sound as of a match being struck behind him. And another. And another. And then there were a thousand matches being struck behind him, and he stood very still and did not look around, because he was afraid, afraid that he would be blinded by the light of all those matches that were moving up toward him across the street. He pushed the cigarette from his mouth and watched the glowing tip hurtle to the cement and saw small shreds of tobacco splatter out like satellites from a sun. And his chest was very cold, and his hands were numb against the barrel and the trigger guard of his rifle, and he turned around.

There. They were there. They were all of them the Face that had looked out at him from Holloway's memorandum screen, with the red eyes, the sunken gray skin, the obscene, shining pates, the knobby, stiff shoulders, the hollow chests, and the gangling legs.

They stood very still before him, like a field of stalagmites in a frigid cavern, and stared at him with their browless eyes. Brake looked from face to face. They hated him. They didn't even know him, and they hated him.

One of the men in the front rank stepped forward with the authority of a leader. He said, "Are you ready to die?" His

voice was a piercing whisper.

Brake opened his mouth. Perhaps he could reason with the—thing. "What are you going to gain by this? By killing the last—survivors of—"

"You left some unfinished business on the outer planets," said the leader.

Unfinished business? What—oh. "But those—Don't move! I tell you I'll. . . ."

"You'll what?" The leader smiled. "You've already killed us, you know. And dead men never die." He started to move forward again.

Brake stepped back and stuttered, "But those men out there can't be saved now!"

"No," rasped the leader, "but they can be given a monument. We will kill all of you, and build in the sun. That will be their monument."

Brake fumbled desperately for words. "But you'll be exterminating the only remnants of humanity—the—all that's left of the race of—living mankind."

"Better a race of dead men than one of cowards."

Brake tried to say, *No, it's not true, we're not weak, we're not cowards*; but his tongue blocked his throat and he could not speak, and his heart was beating very rapidly, and he watched with palsied horror as the leader turned to the dead men and said, "Forward!"

THEY began to lumber toward him. He tried to raise the Laser rifle and fire, but suddenly it was very heavy, too heavy, too large for his hands to hold, and instead of coming up the gun slipped from his fingers and went down to the surface of the porch and hit with a *crack!* Two of the dead men grabbed him, and he began to shout and pull and lunge wildly.

"Nononononono," he gibbered, clenching and unclenching his hands. He knew that he was about to die. He heard the men battering away at the door of the building. "Pleeese," he whined. "Pleeese, God, no. No."

His tongue was distended with fear. Dimly he cursed himself for his cowardice, and his face was flushed with shame as well as with exertion. But still the terror ate away at his strength, and he struggled with less and less effect. The dead men's hands were nylon bands around his wrists, and his body flopped pitifully on the cement as he jerked and strained. When were they going to do it? How?

Then he heard the door to the Complex go, with a great crash. The dead men surged forward, and he was dragged with them. He would be swept into the building without being able to harmonize with its concentrated currents. He struggled feebly. He tried to reach for the doorframe

as he passed it, but his guards held his hands firmly to his sides.

They were inside. The nauseating pain ate into the back of his head as the electromagnetic undertow began to tear at the synapses of his brain and to grind his thoughts to powder.

Little by little his memory crumbled and his consciousness regressed under the pounding of the currents. His two captors released him, and he collapsed stupidly beside the door, holding his head and shuddering.

Through an idiot's eyes he saw the dead men rush into the vertical face of the Complex, saw them smash their bodies against it until it caved in, saw them tear at the wires inside until the field generators whined down from their superauditory pitch and the dazzling radiance of the sun broke over the windowsills and then sprayed against the aluminum walls in foaming waves of light.

And as the electromagnetic currents dissipated, Brake's Conditioner knocked the last supports from under his mind. He howled and rolled his eyes back into his head.

As he floundered and babbled on the floor, the Dead filed past him and through the doorway into the bright world outside.

THE END

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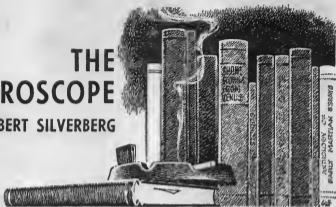
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THE SPECTROSCOPE

By ROBERT SILVERBERG



Son of the Tree, by Jack Vance. 111 pages. Bound with *The Houses of Iszm*, by Jack Vance. 112 pages. Ace Double Books, 40¢.

Jack Vance has been writing science fiction almost twenty years now, and there are few writers I find as consistently entertaining. His virtues are considerable. His style is a bright and vigorous one, glowing with color and keen observation; his insight into character is shrewd and knowing; his stories generally move at a brisk, agreeable pace. Above all he is ceaselessly inventive in the depiction of alien worlds, societies, environments. I very much suspect that if I were handed one of his stories without a byline, I'd identify it as Vance's before I had read four paragraphs, so individual is his manner.

Depending as he does on de-

scriptive texture, Vance is at his best in the longer lengths, and has not written many short stories in recent years. About a decade ago he was fortunate in having a market that could accommodate long novelets such as he was fond of writing, stories in the 30,000-40,000 word range that could be published complete in one issue. These were the Standard Publications magazines, *Startling Stories* and *Thrilling Wonder Stories*, which in those days of lower publishing costs customarily ran a long novel, two or three novelets, half a dozen short stories, and a gaggle of reader departments—and sold the package for 25¢!

Vance flourished in that spacious environment, and now Ace has revived two of the many novelets he wrote in his most fertile period. "The Houses of Iszm"

was in *Startling* in 1954; "Son of the Tree" hails from a 1951 *Thrilling Wonder*. The stories have a superficial resemblance—in each, a single viewpoint character gets involved in an alien society—but the resemblance ends at the surface. The same basic outline serves Vance equally well in two widely different stories.

I'd say that *The Houses of Izm* is the more delightful story, solely because it's one page longer than its companion. Both halves of this superb Ace double are a treat: two swift, colorful, marvelously diverting science fiction adventures. I recommend them most highly.

The Star King, by Jack Vance.
158 pages. Berkeley Books, 50¢.

Here, on the other hand, is Vance's most recent work, and I report with some surprise that it's a quite thoroughly bad novel, as dreary as the foregoing two are delightful. All the Vance trademarks are there, the vivid descriptions, the alien worlds, but the ingredients fail to jell, and the result is embarrassing to this particular Vance enthusiast.

The novel, which was a serial last year in *Galaxy* and which is reprinted here with minor changes, is really a blownup novelet, padded out woefully with copious quotations from magazine articles of the future, latter-day encyclopedias, imaginary books,

and so forth. A good many thousand words are thus grafted onto the story, and many of the "excerpts" put Vance's background information across so leadenly that reading them becomes an effort.

Between the padding lies the thin, rickety story. Kerth Gerson was one of the few survivors of a raid by heartless alien creatures called Star Kings; his grandfather raises him to be an instrument of vengeance; he tracks down one of the Star Kings through a series of maneuvers too implausible for words, and hands him over to another victim for punishment. This in itself might be the basis for a novel, but not as Vance has developed it here. Only his hero's incredible density keeps the plot from collapsing in the first chapter, when he is face to face with his enemy and fails to realize it; his later behavior is beyond all belief, as he stumbles over clue after clue while taking little or no action.

The sad thing is that Vance went to the trouble of inventing a magnificent alien world, which we glimpse tantalizingly for five pages at the beginning of the book, and a few paragraphs at the end. He could have spun a fascinating story around that world, but chose instead to tell a limp and stuttering revenge story that slogs on and on and on. Ev-

ery chapter has its flash of Vance-like brilliance, but the overall effect is a depressing one. *The Star King* will not enhance Jack Vance's reputation—though I suppose he's entitled to slip every now and then.

The Island of Dr. Moreau, by H. G. Wells. 128 pages. Berkeley Highland Books, 45¢.

Here once again, as good as ever, is Wells' grisly little classic about the strange island of beasts-turned-men. It has often been reprinted, both in magazine and paperback form, but it's welcome in this latest guise. (Regular readers of *AMAZING STORIES* won't need to pick it up, since it was serialized here practically the other day—October and November 1926, to be exact.)

It hadn't occurred to me before, but Cordwainer Smith's brilliant stories about animals transformed into men must have had their genesis in this book. Though Smith's style and Wells' couldn't be more unrelated, both writers manage to convey the same sense of alienness and horror when dealing with their non-human humans. The effect in *Dr. Moreau* is a chilling one indeed. It's a marvelous book that has lost none of its power over the years. There is no doubt that we still must look back to Wells to see the seeds of much of today's best science fiction.

Orphans of the Sky, by Robert A. Heinlein. 187 pages. Putnam, \$3.50.

One of science fiction's most familiar and most enduring themes is that of the outward-bound starship aboard which generation after generation of passengers is born, growing ever more unsure of the original purpose of the trip. Half a dozen novels on that theme have been published in recent years, including a scintillating one by Brian Aldiss, and in short story form it pops up every week.

It would seem that the theme has always been with us, but it hasn't. A man named Heinlein dreamed it up in 1941, and offered it, dazzling and new and fresh, as part of his great outpouring of seminal science-fictional ideas in that year. It appeared in *Astounding Science Fiction's* May 1941 issue as a novelet called "Universe," and the sequel, "Common Sense," was published in October, 1941. Now here at long last are both stories together in hard covers under a single title: a document of great importance in the history of science fiction, and a very fine book as well.

"Universe" has often been reprinted. Groff Conklin used it in his 1946 jumbo anthology, *The Best of Science Fiction*, and five or six years later Dell did it as a

(Continued on page 127)

... or so you say



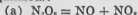
Dear Editor:

The June issue of AMAZING STORIES just has to win the "Loser of the Year" Award for bad science fiction. There wasn't one story worthy of publication, but unquestionably the worst of the lot was Randall Garret's "Tin Lizzie." Not only poor in concept, and horrendous in style, Mr. Garret has mangled the chemistry of the oxides of nitrogen beyond belief. Lavoisier, Priestly, and Scheele are probably rolling in their graves (not to mention the contemporary chemists, Verhoek, Daniels, Bodenstein, etc., who devoted a good portion of their productive years to the study of these compounds). What is particularly galling is that Mr. Garret (who obviously never got beyond, if indeed he ever got through high-school chemistry) presents his little treatise as science fact. No one will begrudge an author a little license in deviating from fact in areas where one hypo-

thesis is as good as another, e.g., time travel, psychic phenomena, and the like, but it seems to me that in the case of rather extensively studied and carefully documented fields, the facts should be presented as they have been ascertained. You'll probably hear screams from far more erudite students of the nitrogen oxides chemistry than I, but I couldn't resist sending a few facts.

1. Dinitrogen trioxide cannot exist as a pure compound in the gas phase (this is also true for the liquid phase; more about this later). It is always found in equilibrium with nitric oxide and nitrogen dioxide in the gaseous state. It is a crystalline solid below its freezing point (-103°C) and a dark liquid up to its normal boiling point ($+3.5^{\circ}\text{C}$, 760 mm Hg). As a gas just above the normal boiling point and in the equilibrium mixture, the N_2O_3 species is *not* red-brown.

2. Nitrogen dioxide, NO_2 , is a red-brown gas over a fairly wide temperature range; it too always exists in an equilibrium mixture with nitrogen tetroxide, N_2O_4 , or as part of these equilibria:



For the nitrogen tetroxide-nitrogen dioxide equilibrium, very little nitrogen dioxide exists below 21.1C (the boiling point of nitrogen tetroxide) or above 150C (the point at which nitrogen dioxide begins to dissociate into nitric oxide and oxygen). Between these two temperatures, however, the nitrogen dioxide gas is brownish-red.

Mixture (a) begins to form at +3.5C (this is a simplification, since there is always some nitrogen tetroxide present with dinitrogen trioxide, even in the liquid phase) and continues to decrease in dinitrogen trioxide content as the temperature increases.

Mixture (b) really hasn't anything to do with Mr. Garret's story, since it doesn't exist at temperatures below 150C, and the surface of Mars never gets that hot.

3. The surface of Mars is a trifle on the chilly side, and its atmosphere is no more comfortable. It's doubtful that the ground temperature of Mars

ever reaches 3.5C (38.3F), except at the equator, so the possibility of the existence of the dinitrogen trioxide-nitrogen dioxide-nitric oxide equilibrium is slight. At the Martian equator, it has been postulated that the temperature could go as high as 70F, so one has to concede that the nitrogen tetroxide-nitrogen dioxide equilibrium might exist, even though it's unlikely. Generally temperature conditions are such that it's far more reasonable to admit to the dinitrogen trioxide-nitrogen tetroxide liquid-phase equilibrium. If this were the case, then the possibility of vaporization of the components into the gas phase, to give the red-brown nitrogen dioxide gas exists, but because Mars had little to offer by way of an atmosphere to absorb incident ionizing radiation, most of the NO_2 would be converted to either free oxygen and nitrogen or, and much more likely, oxygen and nitrogen free radicals.

4. Nitrous acid, HNO_2 , does not exist as the free acid. It can only be found in aqueous solution (and, by the way, a whole new set of chemical equilibria are involved with the decomposition of this compound). It decomposes into nitric acid and nitric oxide because it is unstable. The quantity of

water necessary to form and keep nitrous acid in solution is sizable; it would also have to be liquid water, not water vapor. Mars doesn't have sufficient free water (at least not according to spectroscopic data) available to promote nitrous acid formation. Water tied up in hydrated mineral deposits, if they exist, does not count.

5. The idea of RFNA occurring naturally is a dilly! Red fuming nitric acid is a solution of nitrogen dioxide gas in liquid nitric acid, with a small amount (1.5 to 2.5 weight percent) of water. Obviously, this is not a very stable situation, except when the RFNA is kept under slight pressure, say in a closed container, in which the NO_2 that has vaporized out of the solution exerts enough pressure to keep the rest of it in solution. Even conceding that RFNA could occur naturally, the atmospheric pressure required to keep all of the NO_2 in solution (or at least enough to give you honest-to-goodness RFNA) would have to be far in excess of that known for Mars. This one makes me shudder!

Needless to say, the chemistry of the nitrogen oxides and their corresponding acids is far more complex than I've assumed for purposes of argument. Traces

of water, temperature, pressure, and the reactions of these compounds with each other can drastically alter the various chemical equilibria. However, the foregoing represents a fairly accurate picture of why Mr. Garret's story is a completely preposterous piece of drivel. Any one for chemistry?

Ann H. Rock

(Mrs. W. F., Jr.)

23401 Schoolcraft St.

Canoga Park, Calif.

P.S. I'm not a chemist, so that a more accurate picture may well be submitted by other readers. I am a chemical engineer, and I've recently completed a comprehensive survey on the subject of the nitrogen oxides.

Dear Cele:

Thank Heaven for the Ann Rocks of this world! I am pleased to find that there still exist science-fiction readers who will play The Game. The Game, for the benefit of those younger fans who have never seen it played in the letter columns of s-f magazines, consists of two or more players, one of which is to be the author, and the object of which is for all players other than the author to pick holes in the author's science or scientific extrapolation while the author does his best to defend himself. Properly played, The Game is great fun for the players and has the side effect of being

an excellent sport for the other readers.

One of the rules, however, is that personal attacks are forbidden. Contrary to what Mrs. Rock says is "obvious", I not only got through high school chemistry but managed to assimilate all the chemistry courses required for a B. S. degree. I did not go on to an M.S. or a Ph.D., but I was a professional chemist for seven years. However, since this is Mrs. Rock's first serve, we will overlook that and get on with *The Game*.

I will answer the objections paragraph by paragraph.

1. I did not say the N_2O_4 existed as a pure compound in the gas phase. I said (p. 11): "The oxidizing agent that constitutes a high percentage of (Martian) "air" is a . . . reddish-brown gas known as nitrous anhydride or dinitrogen trioxide." Further, Mrs. Rock is imposing terrestrial conditions on the Martian atmosphere. N_2O_4 does tend to decompose at $+3.5C$, but that is the boiling point of the liquid at one Standard Earth Atmosphere of pressure—760 mm of mercury. Under the far lower pressure of the Martian atmosphere, the boiling point would be much lower, and the equilibrium of Mrs. Rock's equation (a) would be pushed toward the left, in favor of the production of N_2O_4 . As for the color, I can only say that

N_2O_4 gas is reddish-brown. I refer her to Entry No. 25, Page 616, of the 40th Edition (1958-59) of the Handbook of Chemistry & Physics, published by the Chemical Rubber Publishing Co. This is one of the great reference works on chemistry and physics, and I would be surprised indeed if a chemical engineer did not own a copy.

2. I see nothing to argue about here. I have explained the results of lower pressure on Equation (a) at temperatures below $-20C$, and, as Mrs. Rock said, Equation (b) has little to do with the story.

3. Here again, Mrs. Rock is insisting that her Equation (a) in the vapor phase requires temperatures of $+3.5C$ or greater, although she realizes that "Mars has little to offer by way of an atmosphere . . ."

4. Right. HNO_3 exists only in solution. Further, the error is mine. But it was an error in copying my original manuscript. (*The Umpires of The Game*, i.e., the readers, can believe this or not, as they see fit.) I originally wrote: "The atmosphere is loaded with nitrous and nitric anhydrides and nitric acid in vapor form." Somehow, in re-typing, the words in italics were dropped. *Mea maxima culpa*.

5. Red Fuming Nitric Acid (RFNA) is, indeed, a solution of NO_2 in HNO_3 , and in a laboratory

on Earth, the NO_2 does slowly come off, just as the fizz goes out of soda water if you leave the cap off. But that is because "room temperature" on Earth is normally above the boiling point of NO_2 , $+21.3^\circ\text{C}$. At the temperature prevailing on the surface of Mars, NO_2 would normally be a liquid or a solid. (It freezes at -9.3°C .) If RFNA is kept below -10°C , the loss is almost nil, and even under the reduced pressure of the Martian atmosphere, the loss of a solid from a liquid solution would be very slight. The NO_2 would tend to remain as colorless crystals of the polymer N_2O_4 , while the liquid HNO_3 evaporated slowly during the Martian day. (And liquids do evaporate below their boiling point; otherwise a clothesline would be useless for drying clothes.) Mrs. Rock, I fear, shudders for no very good reason. Actually, when it is well chilled, Red Fuming Nitric Acid is no longer either red or fuming. That's why it is often shipped in refrigerated tank cars.

I agree that the chemistry of the nitrogen-oxygen compounds is complex, and one of the things that must be taken into account when proposing that such reactions take place on the surface of Mars is the difference of prevailing conditions. At lower temperature and pressures, materials behave differently.

A point which I am afraid Mrs.

Rock failed to take into account was the life-forms I postulated in the story. It may well be that the incident U-V would tend to break the oxides of nitrogen down into nitrogen and oxygen or the free radicals thereof—but only at the top of the atmosphere. (We don't have much ozone at the surface of Earth for that reason.) But the assumption of a steady breakdown can be balanced by the assumption of a steady synthesis—which is precisely what I did. Mrs. Rock says, "The idea of RFNA occurring naturally is a dilly!" I thought so myself, although not in quite the same tone of voice, if you see what I mean. It depends on what one means by "naturally". It has been fairly well shown that the present atmosphere of Earth is not "natural" in the sense that it could not have occurred without the existence of life. If every living thing on Earth were to die today, the oxygen in the atmosphere would vanish very rapidly, oxidizing everything that was oxidizable. Fortunately, we have life forms here on Earth that have kept this "unnatural" state in equilibrium for a good many millions of years, despite the fact that the "natural" tendency is for the reaction $\text{O}_2 + \text{C} = \text{CO}_2$ to go rapidly to completion to the right. (The reactions of carbon, hydrogen and oxygen are also too complex to go into

here, said he, making what might be the understatement of the year.) But plants aren't worried about that.

The "natural" reaction of carbon dioxide and water is:



(This equation is usually written without the 6's, but I put them in to show the relationship with the next equation.)

H_2CO_3 is carbonic acid, an unstable substance that exists, like nitrous acid, only in water solution. It's the stuff that puts the "tang" in soda water and beer. The equation tends to go very rapidly toward the left, giving you your carbon dioxide and water back. That makes soda fizz and puts a head on the beer.

But plants, using photosynthesis, do it this way:



(The 6's are necessary this time.) Green plants take water and carbon dioxide and make glucose and oxygen out of them, and under these "unnatural" conditions the direction of the reaction is heavily toward the right.

Now there are bacteria right here on Earth which are capable of "fixing" nitrogen, either by oxidizing it to one of the many oxides of nitrogen or by combining it with hydrogen to give ammonia. The equations are much too complex and lengthy to go into here, but the end results

are nitrates and ammonium compounds.

To postulate life forms are capable of producing nitrogen oxides and nitric acid is hardly "wild blue yonder" thinking. They aren't nearly so improbable as thoats and tharks.

As for whether the Martian atmosphere really gets its reddish color from either N_2O , or NO_2 —both of which are reddish brown—I can only say that the latest spectrographic analyses definitely show that such is very likely the case.

Given that such an atmosphere is probable—or even just possible—it is necessary for the science fiction writer to do just what the scientist must do: figure out how come. To do it in this particular case requires that one explain the presence of nitrogen oxides in the atmosphere of Mars under Martian conditions. Given the proper life forms, it would be possible to load the atmosphere with the oxides of nitrogen, including N_2O , NO , and even traces of NO_2 , besides the other two we have already mentioned. There would be very little water free on the surface, since such an atmosphere would tend to convert it to HNO_3 , nitric acid. The oxides would tend to break back down into nitrogen and oxygen, but the Martian "plants" would convert them right back again.

No, I don't know whether such

plants exist, nor whether they actually could evolve under such conditions—neither does anyone else. That's why "Tin Lizzie" is science fiction and not, in spite of what Mrs. Rock seems to think, science fact. But it so happens that I do know something about the reactions of the oxides of nitrogen, both with and without water, and I know enough about them to be able to make valid assumptions about their behavior under conditions other than standard Earth temperatures and pressures.

*Enough. Let the Game go on.
Who serves the next volley?*

—Randall Garret

Dear Editor:

Congratulations on your July issue! Without a doubt it is one of the most superb editions of your magazine I have ever read. Galouye really proved that he can turn out high quality stories consistently with "Mindmate." Lau-mer displayed the same fast paced type of story in "Placement Test" as he did in his memorable "Trace of Memory." Both stories involved a delightful series of unlikely events, written in a likely style. The ending of both stories is similar in that, while unspectacular, it was outstandingly smooth, finishing out what I think are the most skillfully written, if not likely, stories in science fiction today. Any comments,

you dissenters out there? The only questionable piece of work in the whole magazine was Ludwig's "The Scarlet Throne." While this dealt with a worthwhile and pressing subject, the author's method though novel, certainly was not effective, and clouded the entire purpose of the whole story.

I have a few gripes, now, which I shall list:

- 1) Bova's article should have been listed under fiction, not fact. The theories he offers are based on such scanty and uncertain ideas on the planets, that they are highly unlikely.
- 2) If Silverberg can't understand the Burroughs novels, he should not attempt to analyze them in *The Spectroscope*.
- 3) I wish you would keep the letters column in the magazine every month. I can't believe that all science fiction buffs are so dimwitted that they can't support a letters column consistently.

Also, I would like to know when and where the next Hugo convention will be held.

Ronald Price,
Clifton Hill,
Missouri

● 1963 Hugos will be awarded at the Twenty-Second World Science Fiction Convention, September 4-7, 1964, Leamington Hotel, Oakland, California.

Dear Editor:

Just a note to set the record straight. In his article on John Wyndham, Sam says that the film *Children of the Damned* "gives no screen credit to Harris". This is true, but this multi-named Englishman didn't write *The Midwich Cuckoos* as Harris but as Wyndham, who is given credit on screen in a footnote "A sequel to

The Midwich Cuckoos by John Wyndham".

Incidentally, the same producer and director who did *Village of the Damned* (but not *Children of same*) has purchased *The Chrysalids* for filming in the near future.

Bill Warren
P.O. Box 105
Gardiner, Oregon

THE SPECTROSCOPE

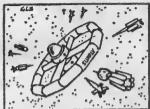
(Continued from page 119)

separate "book" in its ill-fated line of ten-cent paperbacks. (Remember those?) So far as I know, "Common Sense" has not been revived since its initial appearance almost a quarter of a century ago, since, like most sequels, it does not stand on its own as well as the first story.

The novel concerns the Proxima Centauri Expedition, sent out in 2119—a giant spaceship five miles long and two thousand feet thick. A world in microcosm has developed on board, with an elaborate ritualized custom-system, the beginnings of a new religion, and an elegant myth designed to explain the purpose of the voyage to the passengers. There are also mutants on board, outcasts and rebels. (Who could forget the two-headed mutant Joe-Jim Gregory?) The hero is a wide-eyed young man named Hugh Hoyland whose journey

through the ship is a voyage of understanding. Heinlein keeps the action moving at a fast pace, but there is a profound substructure of insight into human society as well, never jabbed in the reader's eye, always integrated with the action in a stunningly skillful way.

A quick check of the original magazine versions shows that Heinlein has made only the most minor revisions in preparing the stories for hard covers. He has (wisely, I think) rejected the temptation to tinker with two well-nigh perfect stories. Nor has he tried to pad them out to make the book the conventional length of 50,000-words-plus. The margins are wide, and the two stories seem about 20,000 words each. No matter. 40,000 words of vintage Heinlein is preferable to 120,000 words of almost anyone else. Buy it. I think Heinlein will add another Hugo to his crowded trophy shelf for this one.



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EDITORIAL

(Continued from page 5)

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